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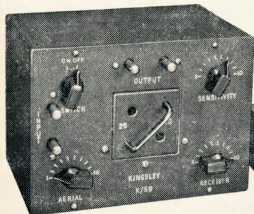


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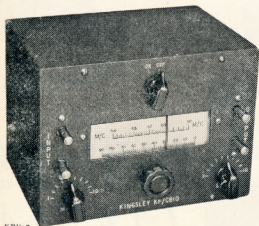
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— IN THIS ISSUE —

Phase Modulated Narrow Band	3
F.M. Exciter	3
Transmitter Design and Construction	4
Results of VK DX Contest	11
Such Nice People	14
Eddystone Competition	14
B.E.R.U. Contest 1948	16
This Could Happen To You	18
Federal Notes	19
Around the Divisions	22
Correspondence	28

EDITORIAL



"The danger to our civilization lies in the disparity between Man's wisdom and his power."—Joad.

With the present trend towards development of new equipment and techniques, we are sometimes apt to forget the advances that can be made in making our equipment safe against shocks and electrocution. In our enthusiasm and knowledge we can easily overlook the danger of our potential lethal machines.

Now is the time for all to become safety conscious and really do something about that "hay-wire." Many of us have young children, inherently curious, who must be protected against such dangers. Don't imagine that YOU or YOU are immune—we can all make ONE mistake. Even the late Ross Hull, who energetically conducted a safety campaign through QST and the A.R.R.L. for some years, made only one.

First you will want that isolating switch which cuts off power to every piece of equipment in your shack, preferably located near the door and out of the reach of children. Desirable also is another switch in series (and in a concealed position) at the operating position. A separate switch for each power supply in the primary circuit is another essential for isolating equipments from each other. Pilot lights are good indicators—use green for filaments, red for h.t.

Be liberal with the use of relays for switching and especially for keying. If you must make adjustments to the rig with the power on, do so with one hand in your pocket—you at least won't receive such a serious shock. Remember always when behind the rig that while you may be careful to watch what you do, you never know when a fainting turn might occur—all your care is then worthless should you bridge the h.t. Remember also that good filter condensers hold their charge for some time—you can get a nasty shock from this source even with all your switches off. Make sure you have all your chassis connected to a good earth—it's cheaper to replace fuses than blow your own.

Learn resuscitation and see that members of your family know what to do if needed. Acquaint them with the right switches to throw—you wouldn't want them electrocuted too.

While we have made no attempt to cover this important subject other than in general terms, we commend to all the excellent articles written in QST* and other publications. Study them well and do something about it NOW. Write an article on it for the guidance of your fellow amateurs—make them safety conscious too. There are always some who won't take heed, but don't let that B.F. be you. Make your gear safe NOW.

W.T.S.M.

* QST for Feb., Mar., April, 1939.

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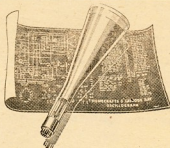
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PHASE MODULATED NARROW BAND F.M. EXCITER

By R. W. SANDON*, VK3ABS

F.M. enables an increased output efficiency to be obtained so that for a given radiated power, the d.c. input power is considerably reduced. In the case of a.m., an output power amplifier must be capable of dealing with a peak signal of amplitude twice that of the unmodulated carrier, but the average depth of modulation being approximately 25% for speech, the stage is normally being under run. An f.m. signal has constant amplitude and hence the output power amplifier can be fully loaded and will, therefore, be more efficient. For the same d.c. input to the output power amplifier, the radiated power is twice as great on f.m. as on a.m.

The exciter to be described uses the oscillator crystal frequency necessary to place a signal in the centre of the 27.185 to 27.435 Mc. f.m. band, namely 27.320 Mc. Any method to suit the experimenter can be used to provide the oscillator frequency providing the output will eventually end up in the f.m. band.

THEORY

The amount of f.m. produced by phase modulation depends upon the amount of phase shift and the rate of change of phase. A shift in the phase of the r.f. carrier will cause the effective frequency to change as long as the phase is changing. As soon as the phase stops changing the frequency returns to its original value. The faster the phase is changed the greater is the frequency shift. When the phase is changed at an audio rate, the change is obviously most rapid at the high audio frequencies, and, for a given amount of phase shift, the amount of frequency modulation increases directly with the modulation frequency.

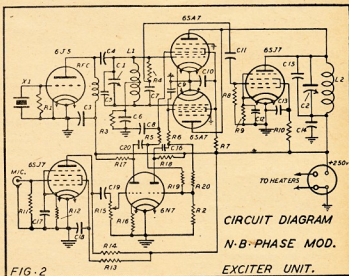
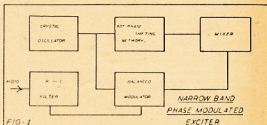
To make the frequency modulation independent of the audio frequency and proportional only to the amplitude of the modulating signal, a simple r.c. filter is inserted in series with the audio input to the phase modulator. This filter causes the amount of phase modulation to decrease linearly as the modulation frequency increases, thus giving a true frequency modulated signal. Phase modulation is obtained by amplitude modulating a constant frequency carrier, separating the a.m. side bands from the carrier, shifting the phase of either the carrier or the side bands by 90°, and recombining the side bands with the unmodulated carrier. All of this can take place at very low power levels, where receiving tubes and components can be used. A block diagram of the basic arrangement is shown in Fig. 1.

The phase shifting network is shown in the excitation lead to the mixer stage, but it might just as well be in the input or output lead of the balanced modulator stage, the only requirements being that there should be a 90° phase shift between the side bands and the carrier. The balanced modulator stage shown in Fig. 1 may consist simply of two tubes with their grids in push pull and plates in parallel, with audio fed into another pair of grids in push pull. When there is no audio signal applied to the modulator, the push-pull grid excitation is cancelled out in the parallel plate circuit, and the modulator does not give any output. However, when an audio signal is applied to the modulator, the stage is

thrown out of balance at an audio rate, and the side bands, minus carrier, are produced across the plate tank circuit. When these side bands are combined with phase shifted carrier, a phase modulated signal is produced.

The principal disadvantage of phase modulation is that only a small amount of frequency modulation can be pro-

duced before the distortion becomes objectionable. The lowest modulation frequency is the limiting factor in the amount of phase modulation which can be used because the previously mentioned r.c. network reduces the phase modulation as the frequency is increased, thus causing the modulation to be greatest at the lowest frequency. For



- R1, R2, R3, R17, R18—100,000 ohms $\frac{1}{2}$ watt resistors.
R3—10,000 ohms $\frac{1}{2}$ watt resistor.
R4—5,000 ohms $\frac{1}{2}$ watt resistor.
R5, R6—3,000 ohms $\frac{1}{2}$ watt resistor.
R7—10,000 ohms 5 watts resistor.
R9—300 ohms $\frac{1}{2}$ watt resistor.
R10—50,000 ohms $\frac{1}{2}$ watt resistor.
R11—2 Meg. $\frac{1}{2}$ watt resistor.
R12—500 ohms $\frac{1}{2}$ watt resistor.
R13—1 Meg. $\frac{1}{2}$ watt resistor.
R14, R19, R20—0.25 Meg. $\frac{1}{2}$ watt resistors
R15—0.5 Meg. potentiometer.
R16—2,000 ohms $\frac{1}{2}$ watt resistor.

- C1, C2—75 mmfd. variable condenser.
C3, C4, C12, C13, C14, C19—0.01 mfd. 600 v. condenser.
C5, C15—0.0001 mfd. mica condenser.
C6, C16, C20—0.05 mfd. 600 v. condenser.
C7—3-30 mmfd. trimmer condenser.
C8, C9, C10, C18—0.1 mfd. 600 v. cond.
C11—0.003 mfd. mica condenser.
C17—25 mfd. 25 v. electrolytic condenser
R.F.C.—2.5 mhy. choke.
X1—1707.5 Kc. crystal.
Mic.—Microphone connector.
L1, L2—Approx. 40 turns, 24 gauge enamel, close wound on 1" former. L1 is centre tapped.

*336 Dandenong Rd., East St. Kilda, Vic.

Amateur or other voice communication work, this disadvantage of the phase modulation method becomes less important. For one thing the male voice does not often produce maximum intensity peaks below 400 cycles, so that we can take 400 cycles as the lowest frequency at which full modulation will occur. Secondly, the maximum permissible deviation may be one half of the lowest frequency at which maximum modulation occurs, thus giving a maximum deviation of 200 cycles.

These three stages produce an f.m. signal having a maximum deviation of 200 cycles. The signal frequency is 1707.5 Kc. Frequency multiplication of this signal to reach the 27.185-27.455 Mc. band would give an increase in deviation of 16 times, making the maximum deviation of 3.2 Kc. at 27.320 Mc. A deviation of 3.2 Kc. on the 27.185-27.455 Mc. band is enough for narrow band work.

THE CIRCUIT

Fig. 2 shows the circuit of the phase modulated exciter. A 6J5 is used as the 1707.5 Kc. crystal oscillator which uses a balanced plate tank circuit. The output from this tank circuit is fed directly to the two number 1 grids of the 6SA7s, which act as the balanced modulator. Another output connection from the oscillator stage is taken from the junction of R4 and C7 which together form the phase-shifting network. When the reactance of C7 is equal to the resistance of R4, the output between the junction and ground is 90° out of phase with the energy at the ends of L1.

The phase shifted output is fed through C11 to the grid of the 6SJ7 mixer stage. The mixer plate tank circuit also acts as the plate circuit for the balanced modulator, and here the side bands are combined with the phase shifted carrier to form a phase-modulated signal. The audio section of the exciter consists simply of a 6SJ7 resistance coupled to a 6N7 self balancing phase inverter. Output from the 6N7 plate is fed through the r.c. networks formed by R5-C8 and R6-C9 to the number 3 grids of the two 6SA7s. The gain of the audio section is ample for any ordinary crystal or high impedance dynamic microphone.

TUNING UP

Before tuning the exciter up remove the 6SA7s from their sockets since these tubes receive their bias from the grid current through R3 and loss of excitation during the initial tuning is likely to lead to damage of the tubes.

After the preliminary tuning the 6SA7s may be replaced in their sockets and C1 and C2 returned to compensate for the capacity added by the tubes' grids and plates. C7 should be set about half way. Speaking into a microphone while listening on a receiver tuned to 1707.5 Kc. should reveal that a frequency modulated signal is being produced.

The power pack for the exciter should be capable of delivering 250 to 300 volts at 80 to 100 mills and 6.3 volts at 3 amp.

Transmitting Design and Construction

By J. N. WALKER*, G5JU

(Published by Special Arrangement with the R.S.G.B.)

The wide range of amateur requirements makes the subject of transmitter design a none-too-easy one to discuss. Further, any transmitting installation of necessity contains many ancillary items such as v.f. oscillators, modulators, power supplies, aerial matching units and so on. This article is confined to the actual generation of r.f. energy for the input permitted or possible, having regard to efficiency, reliability, economy and other factors.

It is not proposed to put forward any hard and fast designs of particular transmitters since so much will depend on factors such as frequency, power, constructional ability and facilities, room available and experimental inclinations.

In pre-war days 60 Mc. was considered a band calling for somewhat special technique. This is only partly so today and the points which follow apply to all the normal Amateur Bands, including 60 Mc. Special v.h.f. technique is not considered since this can well form a subject of its own.

The information is intended in the main for those lacking experience in transmitter design. At the same time, there are many who, whilst capable of building a good piece of equipment, may not altogether be clear regarding the reasons governing the choice of components values, and these will doubtless pick up useful hints.

An Amateur is known by the quality of his signals (and by his operating procedure) and if this article assists others to effect improvements or avoid trouble, its object will have been achieved.

The article is divided up into a number of major headings, any one of which almost forms a subject on its own. Yet, if any are left out or are passed over too briefly, the balance as a whole will be destroyed. Inevitably, some matters must be dealt with briefly.

IMPORTANCE OF IMPEDANCE

An actual transmitter consists of—

- (1) A primary frequency source which may be either crystal or v.f.o.
- (2) One or more frequency multipliers—it is not wise to work straight through in the fundamental frequency, unless the power output is comparatively low.
- (3) Possibly a buffer stage—generally required only for high power working.
- (4) The Power Amplifier stage.
- (5) Aerial Coupling.—Not considered here.

All these stages have things in common—drive, bias, by-passing, decoupling, etc. Variations occur in the applied voltages, power outputs, coupling methods and anode and grid L/C ratios. Also as in practically all other radio apparatus, the component parts all possess one common characteristic—impedance. In places, a high impedance is essential—

in others, the impedance must be reduced to the lowest possible practicable figure. Good transmitter design largely boils down to paying proper attention to the various impedances—matching them together where necessary, and adjusting them to suit the particular requirements called for in different circuits, in different parts of any circuit and when using different types of valves.

By so doing and by correct choice of valves to suit the power requirements, both efficiency and economy of operations are assured.

BY-PASSING

Generally speaking, a high impedance is obviously necessary across tuned circuits and at valve grids and anodes. At other points however, such as the screen grid and cathode valve electrodes and at the "earthy" end of tuned circuits, the impedance with respect to ground—which is usually the chassis—must be low.

R.F. currents exist at all these points and, in the later stages of a transmitter, they can be of considerable magnitude, particularly at the higher frequencies. Current flowing through an impedance produces voltage and this voltage, existing at what should really be "earthy" points, as regards r.f., will lead to instability, lack of gain and erratic performance.

The by-pass condensers used must therefore be of (a) the correct size, (b) the highest possible quality. It is a *sine qua non* that either mica or ceramic condensers should be used—the former will in general prove fairly satisfactory, provided they are not years old and therefore of doubtful quality. For really low loss and low impedance, the ceramic types, such as those manufactured by U.I.C., e.g. the transmitting pot type for high power final amplifiers, the tubular type LPC for lower powers, and the disc type HVD for coupling purposes, are recommended.

What governs the actual capacity used at any particular by-pass position? The reactance of a condenser at any given frequency decreases as the capacity increases and, if other factors were ignored, it should be correct to use 8 mfd. condensers everywhere (voltage permitting). However, that, as Euclid would say, is absurd!

Two major factors enter here, in addition to actual capacity, one is the power factor and the other the inherent inductance possessed by condensers. Power factor is the measure of loss, and

* Engineer, Technical Services Dpt., Stratton & Co. Ltd., Birmingham, Eng.

such loss increases rapidly with frequency. Electrolytic and paper condensers should therefore not be used in radio frequency circuits.

The wire leads fitted to some condensers and generally necessary with others, possess inductance and the thinner the wire the greater the inductance. Some of the impedance developed by this inductance is cancelled out by the capacitive reactance of the condenser but nevertheless, it must be reduced to the smallest possible proportions. This can be accomplished by (a) reducing the length to the absolute minimum; (b) using copper tape or braid instead of comparatively thin wire.

The inductance of an average small mica condenser is usually about 0.04 microhenry. The impedance of this inductance at 7 Mc. is about 2 ohms and at 30 Mc. about 7.5 ohms. The aim therefore is to use a condenser, the capacity of which is such as to cancel out the inductive impedance. As the frequency rises, the optimum capacity becomes less. At 30 Mc., for instance, a 400 pF. condenser has a reactance of about 7 ohms and this is the most suitable capacity.

To take an extreme example to illustrate this point further, assume that in some part of a 60 Mc. transmitter, long leads are necessary to connect a by-pass condenser in circuit and that these leads show an inductance of 1.25 uH. The inductive reactance will be 500 ohms.

Say the condenser is one of 300 pF., which will have a reactance of 10 ohms. Obviously, the much greater inductive reactance will take complete charge and considerable r.f. voltage will be developed across it. If, however, a 5 pF. condenser was fitted in lieu, with a reactance of 500 ohms, complete cancellation would occur and the by-pass would show zero impedance. The cir-

cuit is then series tuned to resonate at the working frequency and this practice is desirable and often practicable in transmitters working on the higher frequencies. It becomes essential in the v.h.f. regions.

Of course, in a transmitter used on several bands, a compromise has to be struck but rarely will any benefit accrue from fitting condensers bigger than 0.002 uF.

DECOUPLING

It is necessary to provide not only a low impedance by-pass for r.f. currents but also a relatively high impedance path, so that the currents do not divide between the two branches. The second branch, which can be a grid bias or high tension lead, is obviously bound to possess considerable inductive impedance and quite small currents will set up r.f. voltages which are then radiated to other parts of the equipment and there amplified, to give rise to all sorts of trouble.

Looking at it the other way also, the long connecting leads are liable to pick up energy off the aerial and, if high impedances are not inserted, this energy will be fed into the early stages.

Proper decoupling is illustrated in Fig. 2. It will be seen that a resistor is included in the grid and screen leads, where the current flowing is small, and an r.f. choke in the anode lead, where it is undesirable to have a serious voltage drop. The value of the resistors should be at least ten times greater than the impedance of the condensers but, even so, the values can still be quite small—200 to 500 ohms.

CORRECT WIRING

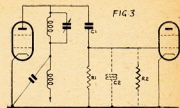
Bound up with by-passing and decoupling is the necessity to wire up any one stage so that circulating currents are prevented. Fig. 1 shows how wiring should not be done. The by-pass condensers C1, C2, C3 and C4 are returned to any convenient point on the chassis, with the result that circulating currents are set up in the latter and, according to the phases, positive or negative feedback effects will occur—generally the latter. Both, when uncontrolled, are undesirable and will tend to cause instability or lack of gain.

The cathode (normally) is the actual point of zero r.f. potential and, in Fig. 2, C1, C3 and C4 are all returned directly to the cathode, with C2 acting as the by-pass to chassis. In some valves—the QVO4/7 for instance—a further improvement results from using the several cathode or internal screen pins individually for each condenser.

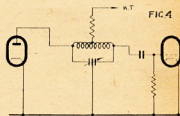
COUPLING METHODS

Correct coupling between any one stage and the next really means matching up the input and output impedances, so that maximum power is transferred.

Capacitive coupling is commonly employed and, because modern valves generally require only low values of drive, it is often satisfactory. In the usual circuit, Fig. 3, C1 is the coupling condenser, C2 the stray capacities (including the valve), R1 the grid leak and R2 the input impedance of the valve. The impedance of R1, R2 and C2 repre-

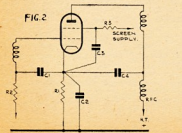
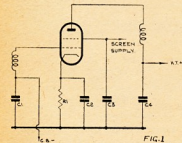


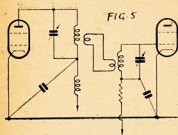
sents an impedance which, at low frequencies, is chiefly governed by C2 and at higher frequencies, by R2. In any case, this impedance and that of C1, form a potential divider across the source of r.f. energy, and the voltage applied to the grid will depend on the size of C1. At low frequencies, C1 can be quite small and adequate power still transferred to the grid of the driven valve. At high frequencies however, C2 must be increased, since the impedance of C2, etc., is dropping. The result, in the majority of cases, is that the tuned circuit is too heavily loaded and the efficiency and output of the driver valve both fall away. To minimise this effect, the L/C ratio of the tuned circuit should be comparatively low—the capacity of the tuning condenser should be at least 1 pF. per metre.



This state of affairs can be improved quite considerably by changing over to the balanced circuit shown in Fig. 4. The stray capacities associated with each valve are now in series—and therefore effectively a quarter of their previous total value—and at the same time, the effect of the valve input and output impedances are also similarly reduced. Two facts follow—it is technically permissible to increase the L/C ratio of the tuned circuit and it is also practicable to do so, because of the reduction of stray capacities. A split stator condenser is required and the size of coil should be increased by 50% or more. The centre tap of the coil must be decoupled by an r.f. choke or a resistor—which can be between 250 and 500 ohms, dependent on the voltage drop permissible.

Link coupling, as shown in Fig. 5, is probably the most efficient method of impedance matching, since the L/C ratio (of which more later) of the two tuned circuits can be arranged independently to suit each valve. Link coupling is equivalent to direct inductive coupling but usually permits better screening and lay-out of the different stages. It also enables the circulating currents associated with each valve to be kept to





their proper paths. It is difficult to achieve proper balance when using capacitive coupling between a single ended stage and a push-pull one and link coupling should always be used.

Experiment is necessary with the number of coupling turns but a good average is to use one tenth the number in the main winding. The link itself can be made of 18 s.w.g. wire enclosed in polythene tubing, laid flat and bound together with suitable adhesive. Poor insulation, such as P.V.C. tubing, should not be brought into the fields of the coils. For long links, the usual low impedance co-axial feeder is very suitable.

STABILITY

By stability is meant controlled operation throughout the transmitter so that a good, clean signal, be it c.w. or telephony, results.

In the first place, construction should be good—properly soldered joints, components of good quality, adequate and properly thought out by-passing and decoupling, etc. All wires leaving the chassis should have small by-pass condensers fitted and it is also important to fit by-pass condensers across each heater or filament to ensure that both ends are at equal r.f. potential. Lack of these is a common cause of modulation hum.

The power supply should be properly designed and be well regulated. Steps should be taken—by the insertion of by-pass condensers and filter chokes—if necessary, to prevent r.f. feedback into the mains wiring and to prevent trouble from r.f. picked up by the mains wiring—the latter can be quite appreciable if the mains wiring is in the field of a large aerial system.

The emission of the valves in each stage is an important point. The oscillator must come into operation instantaneously and each valve must be capable of passing the full peak current expected, in contrast to the average value shown on any meter in circuit.

PARASITICS

The next thing is to ensure that parasitic oscillations are not being generated in any stage of the transmitter. If they develop in an early stage, amplification is almost sure to occur in the later stages whilst, if they occur in the power amplifier, considerable power will be wasted in addition to the spoilation of the emitted signal.

Modern valves are usually of high mutual conductance and very slight feedback is liable to lead to oscillation

and instability. It should not be forgotten, also, that in a tetrode valve, high mutual conductance exists between the control and screen grids. Too often, the screen grid is ignored as a factor in the production of parasitics.

Self-oscillation may take place (a) on or near the fundamental frequency; (b) at a very high frequency; (c) at a low radio frequency; or (d) in several modes simultaneously. With the high value of bias applied, the mutual conductance will, of course, be low. To test therefore, it is necessary to remove the drive, adjust the bias so that a suitable standing anode current flows (within the rated dissipation) and fit meters in the grid and anode circuits (if not already there).

Listening on the receiver will show if self-oscillation at the fundamental frequency is taking place—a somewhat rough, unstable but single note will be audible.

Rotating the tuning condensers will affect the frequency in normal fashion, and average values of grid and anode current will flow. A neon lamp will show the usual brightish red glow.

The cures are obvious—attention to neutralisation if a triode, additional screening and more effective decoupling. Ensure that all metal parts are properly earthed, so that they do not cause indirect coupling. This applies particularly to such items as unused valve pins and metal bases on valves. Radiation off the aerial (if of the end-on type) or off open wire feeders may be reaching the input circuit, if the trouble occurs in the power amplifier. Substitution of an artificial load will indicate if this is the case. Care should always be used to run the feeders directly away from the final tank circuit and it is worth mentioning that the use of low impedance

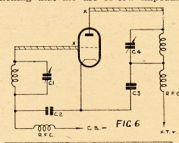
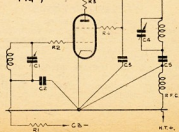


FIG 7



cable, either to feed the aerial or its matching network, will often effect a cure. Occasionally it will be found impossible to cure self-oscillation when no load is connected but that it disappears with a load.

The reason for v.h.f. parasitic oscillation is shown in Fig. 6. Here the anode and grid wires are emphasised to indicate that they may act as a linear tank circuit (with a tetrode, the screen grid lead will act similarly), resonant at a very high frequency, oscillation taking place because of feedback through the interelectrode capacities. Both anode and grid current will be high, the valve will glow considerably brightly and a neon lamp held at the points marked "X" will glow purple but will not glow (purple) at the other end of the line. The effect will be greater with the tuning condensers at maximum since they then act as by-pass condensers to the v.h. frequencies. At minimum, the impedance offered may be sufficient to prevent v.h.f. oscillation.

The cure is to make the anode and grid leads considerably different in length or to insert stopper resistors (see Fig. 7).

Low frequency parasitics are almost always due to the presence of r.f. chokes in both anode and grid (possibly and screen) circuits, and these, with the by-pass condensers, resonate at a frequency much lower than the fundamental. The anode and grid meters will tend to show low current readings and a neon lamp will glow dull red at any part of the anode circuit—which includes the "earthy" end. The variable condensers will have practically no effect.

The cure is to cut out one choke completely—preferably the grid one—and substitute a resistor in its place. Otherwise, alterations of the by-pass condenser values may also effect a cure.

Fig. 7 shows a circuit which includes precautions against parasitic oscillation taking place. The grid and anode resistors should be as low a value as possible and of the carbon—not wirewound—type. Usually 6 to 10 ohms for R2 and 12 to 22 ohms for R3 will suffice. The screen resistor R4 should come before the by-pass condenser and 47 ohms is satisfactory, although on occasions as much as 100 ohms may be required. An r.f. choke is used in the anode circuit and resistors (R1 and R5) in the others, for decoupling purposes.

GRID DRIVE REQUIREMENTS

The various modes of valve operation—Class A, B, and C—are not applicable to the present article. Suffice to say that Class A is rarely used—it is useful for a buffer amplifier in a v.f.o.—and Class B is only used where driving power is lacking (Class B gives maximum power gain). Class C is the usual mode, with grid bias adjusted to two or more times cut-off.

The actual amount of power which must be delivered by the driver stage will depend on several factors, including the type and size of driven valve, the circuit losses, frequency and bias system. Generally it is wise to budget for two or three times the amount of driv-

ing power specified by the manufacturer for any given valve.

The method of coupling, dealt with earlier, also comes into the picture and it is presumed this has been designed to give proper matching.

The circuit losses will naturally be kept small, by the use of efficient condensers, coils and insulating materials. Valve losses, due to lower input impedance caused by transit time effects, and higher circulating currents, will increase considerably with frequency and more power must be applied if the same amount of effective drive is to be realised.

Quite distinct from the input impedance, which exists under any class of operation, a further impedance is placed across the input circuit by the flow of grid current between the grid and cathode of the valve, under Class C conditions. To ensure good regulation of the driving power, this impedance must be taken into account when choosing the L/C ratio of the grid circuit. High grid current with low grid bias volt represents a low impedance. More capacity is then required in the tuned circuit and vice versa.

Grid current flows usually only during a portion of the positive half of the cycle and it should be remembered that the grid current meter indicates average current—the peak value can be quite high.

The current should be the same irrespective of how the bias is derived—the peak amplitude and actual time of flow, or angular duration—are variable

and the average current a constant. The valve manufacturer generally gives two figures for grid current—one the maximum and the other for typical operation. It should rarely be necessary to exceed the latter and never the former, or the rated grid dissipation will be exceeded.

One point should be made clear—the recommended values are for normal operation with the anode circuit properly loaded. With no h.t. on the anode, or the anode current below normal, the grid current will automatically increase. So also will the grid dissipation. The higher the anode volts, the less generally should be the grid current.

The greater the grid bias, the greater the overall driving power required, since both the r.f. voltage and the peak grid current will increase. At the same time however, the impedance reflected by the grid/cathode path will be greater and it will be possible to use a higher L/C ratio, with some probable increase in efficiency.

Care must be exercised not to over-drive any stage. The effects of over-driving are to increase grid dissipation, produce excessive harmonic output and, in a tetrode, drive up the screen current to harmful values. A frequency multiplier stage is, of course, purposely provided with high drive, since it is the intention to produce high harmonic output but the anode current must be properly loaded and steps taken to prevent excessive screen current by feeding the screen from a potential dividing network, or separate supply of correct voltage.

It is particularly important to match the power input to a driver stage to meet the requirements of the driver stage. Presuming efficient coupling, it is obviously absurd to use a stage producing 10 watts or so of r.f. power to drive another requiring 2 watts—yet how often one sees this happening. In such a case, to avoid over-driving it becomes necessary to use loose coupling and the driver valve anode circuit is not properly loaded. If, as is usually the case, the valve is a tetrode, excessive screen current is likely. It is better to reduce the anode and screen voltages and increase the anode current to a reasonable value.

Some means of varying the screen voltage is an excellent method of controlling the drive throughout the transmitter since, in any tetrode valve, the anode current is dependent very largely on the screen voltage.

When using telephony, the drive and also the bias must be adjusted so that they are correct for the valve operating at modulation peaks. The peak input is four times the average input and obviously a valve (or valves) must be chosen capable of withstanding the increased dissipation and peak voltages which occur during modulation. Which explains why the maximum rating given for c.w. must not be used for telephony—drive, bias and peak anode voltages will be excessive.

BIAS SYSTEMS

Three main methods exist of providing bias for a valve:—

(a) Volts dropped across a cathode resistance.

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tion of c.w. transmission is called for.

This effect is directly comparable to the flywheel in the car engine analogy. With a slow revving engine (low frequency) applied to a heavy load (low impedance), a heavy flywheel (large C) is necessary if the power is to be delivered smoothly, and vice versa.

Taking as an example a typical case—a valve such as an 807 running at 600 volts, 100 Ma.—in a single ended circuit, the minimum capacity including "strays" should be 25 pF. at 7 Mc., 12.5 pF. at 14 Mc. and so on. If the voltage is halved or the current doubled (but not in an 807!), the parallel resistance is halved and the minimum capacity must be doubled. In balanced circuit, the parallel resistances are effectively quadrupled and a quarter of the above values is correct. But it must be remembered that, with a split-stator condenser, each section must be twice the value of the actual capacity, with some reserve in hand, of course.

The above applies equally to triodes and tetrodes depending only on the impedance which, for this purpose, may be taken as the product of voltage over current. A push-pull amplifier, neutralised or not, and a neutralised single triode are treated as balanced circuits.

All the above is in the books but it is not the whole story. In the first place, whilst more important in the output stage, the L/C ratio should be correct throughout the transmitter. Further, this applies not only to anode circuits but also to grid circuits, where possible, i.e. separately tuned.

At the higher frequencies—28 Mc. for example—the correct capacity values work out quite small and often smaller than the input or output capacity. Therefore, a greater proportion of circulating current will tend to flow through the valve, including the comparatively thin wire used for the leads and seals. To prevent the increase in resistance loss caused thereby, it is important to ensure that the lumped capacity is at least equal to the valve capacity, and preferably rather greater. Which explains why efficiency tends to fall off with high capacity valves at the higher frequencies and it is better practice to use low capacity triodes.

Other than losses, there is also the necessity of ensuring that actual balance does in fact exist in circuits using split stator condensers. A certain amount of minimum capacity—equal to or greater than the interelectrode capacities—must be present, even if the resulting effective capacity is greater than would normally be called for.

It will be seen that the minimum capacity of a transmitting condenser is relatively important, except when really low capacity valves are employed.

Having dealt with some of the major design factors, it is now proposed to pass on to some practical circuits of the type generally used, and explain briefly the points which call for attention.

THE TRITET CIRCUIT

For some reason or other, the tritet circuit is not always popular but, pro-

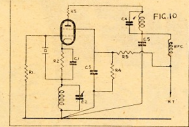
viding the design is correct, no difficulty should be experienced with it. Fig. 10 shows a typical circuit. R1 should be high, for good harmonic output and no choke should be used in the grid circuit. C1 and R2 are desirable, to ensure ready oscillation. The cathode circuit must tune on the high side of crystal resonance, using a low L/C ratio. A capacity of 2 pF. per metre is correct for C2, which also acts as a by-pass condenser at the harmonic frequency. The screen grid should be fed from a potential divider and not allowed to float, the actual voltage being kept as low as possible, consistent with sufficient power output.

The resistor R3 is essential—a value of 22 ohms is usually satisfactory. The L/C ratio of the anode circuit should not be unduly high. Any tetrode is suitable, the 6V6 type being particularly recommended.

CRYSTAL OSCILLATOR

Fig. 10 again applies, with the cathode circuit shorted out. For maximum output, the anode L/C ratio should be on the low side, a value of 1.5 pF. per metre being about right, i.e. 60 pF. for a 7 Mc. crystal. Either a triode or tetrode valve may be used, the latter being less liable to damage the crystal.

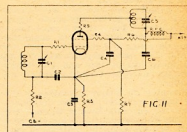
In both crystal oscillator and tritet circuits, the input power should be kept as small as possible, to prevent crystal heating and consequent frequency drift or damage. The anode circuit must be properly loaded up or the crystal current may be unduly high.



FREQUENCY MULTIPLIER

In this service, the valve is operated under conditions which produce severe distortion. Grid bias and drive must be both greater than would otherwise be the case. A tetrode, with its high power gain, is most suitable but a triode can also give good results. The push-pull circuit can be used for even harmonic production, with an increase in efficiency, since the anode circuit receives pulses of energy at twice the rate otherwise possible. Similarly, a push-pull stage is good for odd harmonic output.

Fig. 11 illustrates a circuit suitable for a single tetrode, complete with proper decoupling measures and precautions against parasitic oscillation. The anode is shown tapped down on the coil—a useful device at the higher frequencies to enable a high L/C ratio to be used. Otherwise, the anode circuit should be of the balanced type shown in Fig. 4.



BUFFER AMPLIFIER

The design factors are very similar to those called for in Power Amplifier stages. The power output requirements should be carefully studied so that the buffer stage is neither over nor under loaded.

POWER AMPLIFIER

A large number of transmitting valves are available and the choice will generally be governed by cost, ready availability and power requirements. One point to remember is that it may be better in the long run to use a relatively expensive valve which is of the high current, low anode voltage type, rather than one which requires high anode voltages.

Whether triodes or tetrodes are used is also a matter of choice. Each have advantages and disadvantages, but triodes are definitely easier to adjust and more straightforward in operation. They are therefore recommended to those without much experience.

Tetrodes call for more care in construction rather than design. Better screening is usually required, and all metal parts, such as bases, unused pins, etc., should be connected to chassis by means of short, heavy leads, to prevent coupling effects. The applied voltages are more critical—in particular, the screen and control grid voltages should be as near the maker's figures as possible. It is not good practice to obtain the screen voltage via a dropping resistance, as this leads to poor regulation. Either a potential divider should be used, designed to hold the voltage reasonably constant, or a separate supply. Inability to obtain satisfactory performance is more often than not due to maladjustment of the screen voltage, on which depends the anode current and the degree to which the anode circuit can be loaded.

One effect of overdriving the valve will be to increase unduly the screen current. The voltage dropped across any resistance in series with the screen supply will also increase and it becomes a difficult business to secure proper adjustment. The moral obviously is to use no more drive than is adequate for the purpose and to feed the screen from a power supply of low impedance.

Another effect of overdriving is to produce high harmonic output. This is the object in a frequency multiplier but one to be avoided in a Power Amplifier.

A suggested circuit for a trouble-free power amplifier is given in Fig. 12. Two tetrodes in push-pull are shown—if no suppressor grid exists, omit that part of

the wiring, whilst if triodes are used, omit the screen grid wiring.

Push-pull has many advantages, which show up particularly at the higher frequencies. The stray capacities—which include interelectrode capacities—are in series and therefore much reduced. The valve impedances load up the tuned circuit less and circulating currents in the tuned circuits are smaller.

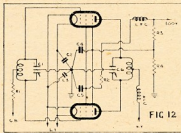
Probably the major advantage is the increased stability. As the frequency rises, the currents flowing through the various by-pass condensers increase and, at 28 Mc. for example, quite large currents would flow through C4 and C5, if only one valve was used. In the push-pull circuit, however, the currents set up by one valve are cancelled by those in opposite phase from the other and theoretically, no measurable current should be present, if the balance is perfect. The latter is, in practice, difficult to achieve but, nevertheless, stability is much enhanced.

The screen grids are fed from a source of correct voltage, rather than via a resistance of comparatively high value in series with the anode h.t. supply. An iron cored choke is shown in series, to permit normal anode modulation—the screen potential will automatically adjust itself.

The suppressor grids are generally rated to run positive and a suitable potential is applied from the network R3, R4. R4 should be kept small—not more than 1,000 ohms—as "grid" current is possible and will otherwise affect the operating conditions.

The by-pass condensers can all be 0.002 uF. mica type, as no high d.c. or r.f. potentials should exist.

It would be well to include a fixed condenser (0.0001 to 0.001 uF. high voltage) between the rotor of C6 and earth, to remove the high d.c. voltage across C6. At the same time, the rotor should be connected to the centre tap on the coil, via the usual type of r.f. choke.



Two separate valves are shown in Fig. 12 but even better balance can be achieved if the two valves are enclosed in one envelope, with an additional screen by-pass condenser fitted internally. Examples are the Mullard QV04/20 and QV07/40, with both of which, useful inputs and outputs can be realised, with moderate anode volts, over all amateur frequencies including 60 Mc.

If space permitted, there are many other subjects which could have been included, such as modern tendencies to-

wards bandswitching and the use of low Q circuits as means of simplifying the construction of multi-band transmitters. Others are safety factors, plugs and sockets (power and r.f.) metering, but they must be left for the present.

But just a few general hints to conclude:—

1. Use efficient coils everywhere—not necessarily heavy gauge wire but with spaced turns and proper ratio of diameter to length. Long narrow coils have low natural Q values.
2. Keep all heater or filament volts at or just above the rated value—efficiency and output fall off rapidly with reduced voltage and harm is also caused to the valve.

3. Tune up on low power—advice frequently given but rarely acted upon. This is particularly important in the case of pentode or tetrode valves.

4. Fit a meter permanently in the grid circuit of the power amplifier and monitor the operation of the transmitter by watching grid current. If the latter is incorrect, then trouble is developing somewhere.

RADIO WAR

Some interesting details of the Radio War between England and Germany appear in the N.S.W. Divisional Notes. We recommend your perusal.

FIFTY AND UP

It is regretted that notes received from Divisions for Fifty and Up have not appeared in print. They were forwarded to the person responsible for the compilation and were not returned in time.

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RESULTS OF VK DX CONTEST

E. H. JENKINS, VK3QK, CONTEST MANAGER

The W.I.A. 1947 DX Contest was an outstanding success and judging by the scores and number of logs entered, the best yet held. Most logs were accompanied by appreciative letters complimenting the W.I.A. on the organisation and publicity, although many overseas stations expressed disappointment at

the ZLs not being included as in pre-war Contests. We trust that ZLs may be with us in the future.

Conditions were good generally, rather favouring the c.w. section on the latter week-ends.

The phone entries were very disappointing however, and many stations

who participated in the Contest did not even send in check-logs. Wouldn't the "big phone men" like to see their calls down low on the lists?

The Receiving Section was VERY poorly represented, only two scoring VK logs being entered. A couple of logs were also entered, but no attempt was made to calculate their scores, nor did they apparently read the rules correctly.

Heartiest congratulations must be given to VK2EO for his sensational score. It is a wonderful tribute to his operating (and endurance), and he must be definitely rated the top DX-man of the year. He had a total of 750 QSOs with a multiplier of 85 countries. He worked 58 countries on 14 Mc., 19 on 28 Mc., 3 on 27 Mc., and 5 on 7 Mc. The many countries worked would make the average Ham green with envy. Congrats, Dave, glad you enjoyed it so much and hope you will be in it next year.

VK2DG, using 80 watts to a half wave vertical, had a total of 472 QSOs and 76 countries on 14 Mc. The outstanding fact of his log was that it could not be faulted. Nice operating!

VK4AP contacted 32 countries on 28 Mc. and used 60-70 watts with stacked 8JK's on Europe and South America, and a folded di-pole on North America and South Africa.

VK6RU worked 42 countries on 28 Mc. in 150 QSOs, and 235 QSOs with a multiplier of 70 countries in the Open Section. A great performance on phone.

VK2ADT, also on phone, returned a splendid log, working 5 bands, but only entered the 28 Mc. section with 245 QSOs and 37 countries.

VK3IG on 14 Mc. phone had 245 QSOs and 37 countries to his credit; another great effort.

The most outstanding DX station was XE1A, who worked 5 bands c.w. having 227 QSOs and a multiplier of 20 VK districts. On phone, working 4 bands, he had 175 QSOs and a 16 multiplier. He used a 3 element rotary on 28 and 27 Mc., folded dipoles on the other bands with 750 watts input, phone and c.w. It was an excellent log and could not be faulted.

Most logs were clear and concise, although a few were quite the opposite. Many check logs were also received. Thanks a lot, chaps.

The W.I.A. thanks all entrants and manufacturers who donated the prizes for making the Contest the success it was, and hope you, and lots of others, will make the 1948 Contest an even bigger one.

AUSTRALIA C.W. SECTIONS Open

VK2EO	190,230	VK2GW	27,814
2ZC	87,373	4RC	25,584
2ANN	91,665	3PC	16,848
2RA	73,392	6RF	14,601
2YL	57,879	7LZ	12,528
3XK	43,845	2MT	10,425
7LJ	40,764	5FM	9,951
3XQ	40,119	5LD	6,150
3HG	36,000	3JA	5,700
2YC	34,020	3RJ	3,672
5KO	33,010	2HI	2,565
		7AL	1,296

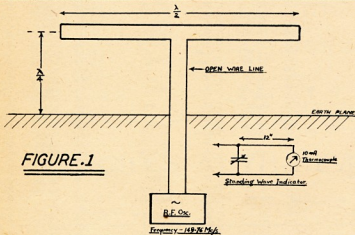


FIGURE 1

This is the illustration which should have accompanied the article, "Some Measurements of the Impedance Multiplication Factor of Folded Dipoles," by J. O'Shannassy, VK3YC, in the January issue.

Radio Hobbyists

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VK4AP	23,808	18 Mc.	VK3HT	9,504
2HO	20,358		2NY	9,225
2JX	19,932		2AHM	8,073
5LJ	12,180		2ANN	4,131
2GW	11,340		3XK	4,020
3PG	9,900			

VK2DG	107,616	14 Mc.	VK3BK	8,346
2ZC	97,773		3JI	8,325
2AHA	91,465		3AJB	6,630
3CN	57,888		3YF	5,406
2QL	53,880		3FH	5,100
2NS	43,665		4RF	4,182
3MC	41,310		3LN	3,115
7LJ	40,764		3ADG	2,730
2ANN	40,672		2VG	2,688
5JS	35,340		5LU	2,688
3XU	26,076		5RL	2,025
5RX	25,623		7DS	1,353
2EK	21,216		2OA	870
3XK	20,280		3AT	720
7RK	15,390		3ARE	432
5DQ	10,764		2RB	324
4TY	10,281		3ACT	270
4DO	8,517			

VK3DQ	540	7 Mc.	VK2ANN	336
2RA	432		3XB	198
3HG	360			

VK2RA	54	3.5 Mc.	VK2ANN	6
3HG	48			

PHONE SECTIONS

VK6RU	49,350	Open	VK3IG	27,195
6HL	34,182		2YL	6,324
6FL	32,088		3HG	2,550
2ADT	29,160			

VK2ADT	19,980	28 Mc.	VK4HC	2,280
6RU	18,900		2NY	2,166
2FP	13,872		3QK	2,340
2AGD	13,248		5KL	1,890
5LC	7,050		2JX	1,320
2AHM	4,050		3BW	162
2RB	2,700		3VQ	135

VK3IG	27,195	14 Mc.	VK2WD	2,475
3LN	10,440		2VG	24
4KS	9,984			

RECEIVING SECTION

Eric W. Trebilcock	3,510
Maxwell W. Rieper	3,277

VK2RA	180
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OVERSEAS

C1CH	975	Open	Phone
C1AN	48	Open	Phone
CESAG	900	14 Mc.	C.W.
CEAD	42	14 "	C.W.
CTINT	3	14 "	C.W.
E14Q	375	14 Mc.	C.W.
F9DZ	30	14 Mc.	C.W.
G2FXQ	1,278	14 "	C.W.
G2FRW	684	14 Mc.	C.W.
G3BI	2,457	Open	C.W.
	1,476	14 Mc.	C.W.
G3AGM	300	28 "	Phone
G3SB	45	14 "	C.W.
G4RX	465	28 "	C.W.
G4LX	96	28 "	C.W.
G5SR	972	14 "	C.W.
G5RF	720	28 "	Phone
G5DF	480	Open	Phone
G5AX	345	14 Mc.	C.W.

G5MY	284	14 "	C.W.	LA7Y	2,220	Open	C.W.
	4,875	Open	C.W.	LX1SI	285	28 Mc.	Phone
G6CJ	1,242	14 Mc.	C.W.	MD1D	630	14 "	C.W.
	795	28 "	C.W.	NY4CM	1,008	Open	C.W.
	18	7 "	C.W.		12	14 Mc.	Phone
G6GN	3,597	Open	C.W.		1,080	Open	C.W.
	3,267	Open	C.W.	OH2NB	300	14 Mc.	C.W.
G6BQ	1,332	14 Mc.	C.W.		288	28 "	C.W.
	375	28 "	C.W.	OH2PK	420	Open	C.W.
G6RB	1,560	Open	C.W.	OH3OB	36	14 Mc.	C.W.
G6XL	486	14 Mc.	C.W.	OH3NB	1,530	Open	C.W.
G6RC	150	14 "	C.W.	OH5NF	1,380	Open	C.W.
	5,082	Open	C.W.	OH5HM	45	14 Mc.	C.W.
G8IG	1,800	14 Mc.	C.W.	OH6NZ	132	14 Mc.	C.W.
	810	28 "	C.W.	OK1JB	1,026	Open	C.W.
G8IH	3,630	Open	C.W.		36	Open	Phone
G8KP	1,500	Open	C.W.	ON4NC	350	Open	C.W.
	480	14 Mc.	C.W.	OZ7EU	225	Open	C.W.
	270	28 "	C.W.	OZ7HM	54	14 Mc.	C.W.
G8QX	1,428	Open	Phone	OZ9Q	3,201	Open	C.W.
	780	28 Mc.	Phone		1,152	14 Mc.	C.W.
	96	14 "	Phone		495	28 "	C.W.
	1,290	Open	C.W.		238	28 Mc.	Phone
G8QZ	640	14 Mc.	C.W.	OZ9Q	621	Open	Phone
	270	28 "	C.W.		63	14 Mc.	Phone
G8RL	1,053	Open	C.W.	PA0OO	3,300	Open	C.W.
G8KG	810	14 Mc.	C.W.		96	28 Mc.	Phone
G8VV	450	14 "	C.W.	PA0RL	126	14 "	C.W.
GM4UU	36	Open	Phone	PA0FB	96	Open	Phone
GM5IR	702	Open	C.W.	PK3MR	220	Open	Phone
GM8SQ	1,377	Open	C.W.	PK4KS	936	14 Mc.	C.W.
GW3ZV	2,286	14 Mc.	C.W.	PK4MD	108	Open	C.W.
GW4CX	345	14 "	C.W.	SM5PA	240	Open	C.W.
HB9AW	60	Open	C.W.	SM5WL	9	14 Mc.	C.W.
HK4CO	300	28 Mc.	Phone	SM5RF	3	28 Mc.	Phone
I1MH	2,090	Open	C.W.	TG9JK	195	14 "	C.W.
I6ZJ	2,754	Open	C.W.		108	14 "	Phone
J2AAJ	738	14 Mc.	C.W.	VE1EA	936	14 "	C.W.
KG6AL	5,508	Open	C.W.	VE3GT	204	14 "	C.W.
KG6AI	2,210	Open	Phone	VE3ADV	120	14 "	C.W.
	2,210	14 Mc.	Phone	VE3AFY	54	28 "	C.W.
KH6BW	1,782	14 "	C.W.	VE4RO	1,440	Open	C.W.
KH6BI	840	28 "	C.W.	VE5QZ	24	7 Mc.	C.W.
KH6IJ	660	Open	C.W.	VE6BU	63	Open	C.W.
KL7MH	720	Open	C.W.	VE7ZM	3,024	Open	C.W.
KP4KD	1,050	Open	C.W.	VQ2GW	180	14 Mc.	C.W.
KZ5DX	666	14 Mc.	C.W.	VR5PL	3,840	14 "	C.W.
KZ5AW	240	28 "	C.W.		324	14 "	Phone

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VU2BF	774	Open	Phone	2DS	192	14	8PQQ	1,386	14
VU2KM	63	28 Mc.	Phone	2UVE	180	Open	8EXI	954	14
VU7JU	36	28 Mc.	Phone	2EWT	81	7 Mc.	8SYC	882	14
XE1A	13,620	Open	C.W.	2QQ	33	14	8MQR	882	14
	8,400	Open	Phone	W3BES	9,516	Open	8LFE	574	14
XE1FE	540	28 Mc.	Phone	3GHD	2,772	14 Mc.	8DAE	546	Open
XZ2YT	744	28	C.W.	3DKJ	1,848	14	8BSR	690	Open
YS1JR	96	14	C.W.	3LPE	1,548	14	8ZJO	360	14
ZE2JA	240	28	Phone	3FQB	1,350	14	8ZBC	204	Open
ZS2BU	621	Open	Phone	3FGB	1,134	14	8KPL	171	14
ZL1MB	2,682	14 Mc.	C.W.	3EIV	1,089	14	8QHV	288	Open
ZL1DV	2,190	Open	C.W.	3KAT	1,044	14	WAAEH	10,656	Open
	2,160	Open	C.W.	3IXN	675	14	9VW	3,549	14 Mc.
	832	28 Mc.	C.W.	3DRD	285	14	9NII	2,052	14
ZL1MR	84	7	C.W.	3CTE	240	28	9RHP	1,332	14
	330	28	Phone	3LMM	240	14	9PNE	1,512	14
	330	Open	Phone	3ARK	60	14	8MZP	540	14
ZL2MM	288	7 Mc.	C.W.	W4FIJ	2,935	Open	8ZQX	345	14
ZS5U	3,069	Open	C.W.	4LIU	1,764	14	8VIN/9	255	14
	360	28 Mc.	Phone	4KVV	81	28 Mc.	9FKC	165	14
ZS5HC	567	Open	C.W.	4TM	1,449	14	9HVM	30	14
ZS5BW	18	14 Mc.	C.W.	4MR	720	14	9KXX	18	7
ZS5BJ	18	14	C.W.		420	28			
American C.W.							American Phone		
W0GKS	3,276	14 Mc.		W5KC	2,499	14	W3BES	928	Open
0MPW	1,215	Open		5FNA	840	Open	3DKJ	540	14 Mc.
0YCR	645	14 Mc.		5JPC	180	14 Mc.	3FGB	96	14
0CTR	425	14		W6HZZ	11,475	Open	3CTC	6	28
0DAE	240	14		6PNO	5,362	Open	W4TM	1,260	14
W1RY	4,053	14		6HJE	1,800	Open	W6VNH	204	28
10JM	1,494	14		6DTH	1,470	Open	6WCQ	72	28
1BIH	390	14		6MHF	810	14 Mc.	W7JPY	360	Open
1BOD	324	14		6EJA	450	14	W8BHW	3,816	Open
1CDX	132	14		6DNH	218	14	W9NII	144	14 Mc.
1BDU	108	14		6CEO	210	14	Overseas Receiving		
W2BBK	2,430	14		W7JPY	1,716	Open	BRS-1535	4,323	Open
2DKF	1,476	14		7JFU	384	28 Mc.	BRS-15024	3,861	Open
2CVQ	1,215	Open		W8BHW	16,932	Open		1,638	14 Mc.
2IFA	954	14		8JIN	16,524	Open		390	28
2ATE	864	14		8JIN	16,524	Open	BRS-250	774	14
2HAZ	522	14			4,662	14 Mc.	OE351	378	Open
2EQS	414	14					OE059	345	14 Mc.
2LRG	195	14							

SUCH NICE PEOPLE

By "GREMLIN"

Bright New Year to you all. Better late than never but didn't catch on the month was only a week. Anyhow being time of year when all peoples chuck goodwill, peace and like things about, far be it from me to differ.

How did you like the 7 Mc. band over the holiday season, portables and all that? 2.4MW with splash and distortion was about the worst portable I identified, but don't worry about it o.m., I could understand you which is more than I can say for quite a few. What beats me they seemed to be working somebody so I don't know.

Before I forget and 3XF gets a bead on me, humble bending of knee to you o.m. My remarks re clicks were intended for 2XF, sorry for mistake in print. (Hon. Ed., not your fault, I'll admit I was trying to use two fingers on the "writer.")

And do I hear fairy footsteps? Faint ploddings of the fairy, King Nan, I guess. Which is funny sorta handle for a fairy, but maybe it got that way being next in line to a Jig Mike, or maybe it had something to do with being the big shot around where rivers flow bottoms up (no relation to sending a drop). Anyhow, no matter, a fairy by any name be she blonde or slightly mock chewed, is sweet. If my old clobber Bill was still around he would probably dash off an ode to a disposal joint, something like,

Xmas has gone,
Stocks don't seem to fall,
Looks like the straight eight,
For the old three ball—we hope!

You may remember Bill, he was always chucking doublets and couplets together at his Avenor QTH. Around about the time 2NO and 3UN went on the air!

Which has nothing at all to do with splashing from 3XD, 2ALO, 3IE, 3ADS, 4HG, 2AGM, 2AJX, 3DQ, 2ACD, 5CH, 3ANB, 3VB and 3LU. Hang on, that's not all, they get worse now. 2FH and 4FW add hum, and 3UE's 39 straight CQs. Dick (2ADW) yours is a mighty ooze out the high frequency side.

For distortion, I recommend 3SJ and 3AWW, with hum added by 3AKO and 3RL. 7AG's carrier has hot feet to make it even harder—I don't think it's meant to be fm. 2ACU, 2TG and 5ZR just hum.

Clicks seem to be getting more prevalent the last couple of months. Plenty from 4DA, 3ANL, 7YY, 3FC, 3AH, 2ADE, 3AIG, 3WW, 3DN, 4VU, 3ZV, 7OM, 3IU, 3AKP, 3DQ and 3YF.

For a couple of really punk c.w. sigs you couldn't wish for better than 3TR and 3UB produce. They have everything T9X doesn't cover, with the operating standard on a par. I might even go as far as saying this 3TR hasn't paid the necessary quid. Funny thing I've noticed a few broadcasting station calls on our bands of late. Must buy me a new call book and look-see. Yep, don't rub it in, I know I grieved about the

AN OPPORTUNITY TO WIN A "EDDYSTONE" RECEIVER

World Wide Competition of Interest to All Radio Amateurs

The Eddystone "640" Communications Receiver has been designed and produced by professional engineers, with long and extensive experience, and well versed in amateur radio technique. The "640" not only possesses a first-class electrical performance but is also a sound engineering job, built "to take it" in any climate.

The "640" is well known to British amateurs, many of whom are, with its aid, working more DX than ever before.

To obtain overseas publicity for the "640" Receiver, and to give overseas Radio Amateurs and Short Wave Listeners an opportunity of competing for one, the manufacturers of Eddystone Receivers have decided to present, free of charge, a new Eddystone "640" Receiver to the writer of the best article on one of the three following subjects:—

(1) How do you visualise the application of the new Micro-wave Channels shortly to be allocated to Radio Amateurs?

lack of an up-to-date list, now it's here I haven't got it—a poor show, what!

While we are on this operating standard business, what's all this whistling and blowing that goes on with some phone merchants? If it's cobwebs that worry you, switch off mike between blows, please. Funny thing it's these merchants who produce CQs by the dozen between call signs. Blokes like 3ANL, 3KF and 3ANB I refer to. They aren't the only ones, but a fair sample I guess. You know, I must be a patient sorta dope for I listened to 3ANB for five minutes on one occasion, five minutes of whistling, blowing and CQing before he let go a call sign. Did anybody come back? The answer is obvious.

3ANL, you sound like a young and eager sorta cove, obviously getting a kick out of this game. To you and any newcomer, may I offer a spot of advice? You get far more QSOs by listening, picking your mark and calling, than by endless CQing. Try it. I'm sure any old timer will agree with me there. I learnt the hard way and boy it's not hard to become disillusioned.

2ACS also prone to wander on with CQs and no call sign. Thirty about your best sort o.m.

Should I run a line through 7YY in the "clicks parade" following his remarks in the January Mag? Now this isn't soft soap. If you want hear a swell fist listen to him. If you don't agree with his remarks I'm sorry for you.

V.F.O. user 2OJ watch out. Them things a bit hot at the moment—and rightly so in a lot of cases. Followed your carrier around the band and finally got you signing—once!

If it's a new year resolution you want, try skipping "HI" on phone—if you can't laugh, it's not funny is my guess.

(ii) It is evident that Band Planning will be essential if the most is to be made of the Amateur Bands. What proposals have you to make in this connection?

(iii) What are your views on the subject of the relative merits of British and American Communications Equipment? (We wish to make it clear that articles on this subject should be written without prejudice.)

Choose one of these—the one you feel you can write about easiest—and write an article about it, running to not more than 1,500 words. To the writer of the best essay, an Eddystone "640" Receiver will be presented FREE. When judging the work, points will be awarded not only on literary style but also on clarity, force of argument, constructiveness and other similar factors. All, therefore, have an equal chance.

The following have kindly consented to act as judges:—

Mr. John Claricoats, General Secretary, R.S.G.B.

Mr. Austin Forsyth, O.B.E., Editor Short Wave Magazine.

Mr. Geoffrey Parr, M.I.E.E., Editor Electronic Engineering.

Competition Rules

1. Write an article of not more than 1,500 words on any one of the specified subjects.

2. All entries to be preferably typed or, alternatively, written in ink, on one side of the paper only, with wide margins.

3. Entrant's name, full address, and occupation to be clearly shown on each entry.

4. Entries to be posted in sealed envelopes, marked "Competition" in top left-hand corner, to Stratton & Co. Ltd., Eddystone Works, Alvechurch Road, Birmingham, 31, England.

5. Closing date for the Overseas Competition is 30th April, 1948.

6. The prizewinner will be notified by cable as soon as possible after the closing date.

7. The copyright of all entries is reserved by Stratton & Co. Ltd.

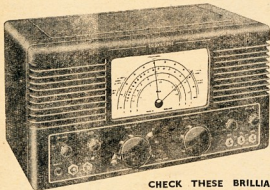
8. Competitors must be resident outside the United Kingdom.

9. It is a condition of entry that the judges' decision is final and legally binding. No correspondence can be entered into on the subject of the Competition.

The Eddystone "640" Receiver has been specifically designed to fulfil the amateur enthusiast's needs for a really first-class Communications Receiver. It is a nine-valve superheterodyne with electrical bandspread over the whole tuning range, the amateur bands being distinctively marked. Continuous tuning from 31 Mc. to 1.7 Mc. The circuit includes a triode hexode frequency changer preceded by a high gain low noise r.f. stage; two i.f. stages with crystal filter; combined detector, a.v.c., and first audio amplifier; noise limiter; b.f.o.; beam tetrode output valve, and rectifier. Efficient vacuum mounted 1.6 Mc. crystal filter; stand-by switch; provision for "S" meter. Steel cabinet is handsomely finished a fine Ripple Black.

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The EDDYSTONE "640"



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CHECK THESE BRILLIANT FEATURES:—

1. Receiver has been designed primarily for Amateur Communication purposes, tuning range from 31 Mc/s to 1.7 Mc/s.
2. Designed to operate from Standard A.C. Mains with Inputs of 110 volts 200/240 volts, 40/60 cycles as well as from a 6 volt battery by the use of a separate vibrator unit.
3. Inclusive all valves, the "640" is a 9-valve job with one tuned RF stage, FC, two IF stages, detector-AVC-1st audio, 2nd audio output, noise limiter, BFO and rectifier. The valves used, in that order are EF39, 6K8, EF39, EF39, 6Q7, 6V6, EB34, EF39 and 6X5. These are all international octal based on the Mullard or Brimar versions and are therefore easily replaceable.
4. INPUT IMPEDANCE—400 ohms.
5. TUNING RANGE—
(1) 31 to 12.5 Mc/s.
(2) 12.5 to 5 Mc/s.
(3) 5 to 1.7 Mc/s.
6. TUNING. An electrical band-spread arrangement is used for this purpose. Fly-wheel control is utilised on the band-spread condenser drive. The scale is clearly marked with all amateur bands, and is so arranged to enable accurate re-setting to a spot frequency.
7. I.F. FREQUENCY—1600 Kc/s.
8. CRYSTAL FILTER is a vacuum mounted to provide a high degree of stability. Phasing control and "in/out" switch are brought out to the front panel.
9. Sensitivity is better than 2 microvolts input, for 50 milliwatts output, at all frequencies.
10. OUTPUT. Audio frequency output exceeds 3.5 watts.
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B.E.R.U. CONTEST, 1948

GENERAL RULES

1. The event will be divided into three sections, namely:— (a) Senior (high power) Transmitting Section; (b) Junior (low power) Transmitting Section; (c) Receiving Section. The three sections will be run concurrently.

2. The Contest is open to all British subjects living within the British Empire and British Mandated Territories and to British Occupational Forces operating properly authorised stations, who are fully paid-up members of either the R.S.G.B. or one of the British Empire Societies. All entrants agree to be bound by the Rules of the Contest.

3. Entrants who are not members of the R.S.G.B. must certify in the declaration that they were fully paid-up members of their local society at the time of the Contest.

4. An entrant not located in one of the prescribed Prefix Zones shall be considered as being in the Prefix Zone nearest to his station.

5. Contacts with, or reports from, ships or unlicensed stations located in countries where licences are obtainable will not be permitted to count for points. The decision as to whether a station is to be classed as unlicensed will rest with the R.S.G.B. Contest Committee.

6. Only one person will be permitted to operate a specific station for the duration of the Contest.

7. A trophy will be awarded to the fully paid-up member of the R.S.G.B. scoring the highest number of points in each section of the Contest. Certificates of merit will be awarded to the first three stations in each section and also to the leading station in each Prefix Zone, providing at least three entries have been received from the zone in question. In addition a second certificate will be awarded to each zone provided ten or more entries are received from that zone.

8. The declaration at the foot of the Entry Form must be signed by the operator, who will be recorded as the competitor.

9. Entrants must provide their own log sheets which, together with the analysis sheet, must be legibly written or typed as set out on the next page. Incomplete entries will be disqualified.

10. All entries must be posted within seven days of the close of the Contest. No entry will be accepted at R.S.G.B. Headquarters, New Ruskin House, Little Russell Street, London, W.C.1, later than 14th June, 1948.

11. The judging of entries will be carried out by the R.S.G.B. Contest Committee. The President's decision will be final in all cases of dispute.

12. No correspondence can be entered into regarding any decision made by the President or Council.

13. The Contest will extend from 0001 GMT, Saturday, 3rd April, 1948, to 2359 GMT, Sunday, 4th April, 1948, and from 0001 GMT Saturday, 17th April, 1948,

to 2359 GMT, Sunday, 18th April, 1948.

14. Contest operation during local hours of restrictions in the use of electricity for wireless which have been publicly announced is forbidden. The duration of any such restrictions will be recorded on the entry form.

RULES FOR THE TRANSMITTING SECTIONS

1. Fifteen points will be scored for the first contact on a specific band with a British Empire station located in any Prefix Zone outside the competitor's own zone. Fourteen points will be scored for the second contact on the same band with the same zone, thirteen points for the third contact, and so on to the fifteenth contact, which contact will score one point. All contacts with that particular zone on that band thereafter will count one point each. This scoring procedure will be repeated on each band to encourage multi-band operation.

2. Only one contact with a specific station may be made on each band during the Contest.

3. The Contest is open for two-way c.w. contacts only on any amateur frequency band, providing the input to the valve or valves delivering power to the aerial is not in excess of that specified on the competitor's licence and in no case more than 150 watts in the Senior (high power) Section and 25 watts in the Junior (low power) Section, and providing the entrant has permission to operate his station on the band or bands in question.

4. The conditions laid down in the entrant's transmitting licence shall be observed.

5. A serial number consisting of six figures must be exchanged before points may be claimed. The serial number is made up of RST and three numerals denoting the number of the contact, the first contact being 001, and so on.

6. Entrants receiving consistent tone reports of less than T8 will be disqualified.

7. Specially appointed Band Monitoring Stations under the auspices of the R.S.G.B. will be active during the Contest. Any station reported off frequency by these checking stations will be disqualified without appeal.

RULES FOR THE RECEIVING SECTION

1. One point will be scored for each British Empire c.w. station heard working another British Empire c.w. station, providing the station heard is located outside the competitor's Prefix Zone. An additional 50 points will be scored for each Prefix Zone heard on each band (i.e. 51 points will be scored for the first station heard in a particular zone and one point for each subsequent station heard in the same Prefix Zone on the same band). This scoring procedure

will be repeated on each band to encourage multi-band reception.

2. Before a point can be claimed, the following information must be logged:— (a) call of station heard; (b) call of station being worked; (c) entrant's report on the signals of the station heard (RST); (d) the Serial Number given by the station heard to the station being worked.

3. CQ and Test calls will not count for points.

4. The same station may only be logged once on each band during the two week-ends of the Contest.

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FORMAT OF THE B.E.R.U. ENTRY FORM

B.E.R.U. Contest, 1948 Section
 Name (Block Letters) Call Sign
 Address
 Transmitter
 Input Power to last valve(s)
 Receiver
 Aerial Systems used

Date	G.M.T. Contact Established (2)	Band Used (3)	Call Sign of Station Worked (4)	Serial Numbers Sent (5)	Rev'd. (6)	Points Claimed (7)
(1)				...001		
				...002		
				etc.		

TOTAL

DECLARATION:—

I hereby certify that my station was operated strictly in accordance with the rules and spirit of this Contest, and I agree that the decision of the President of R.S.G.B. shall be final in all cases of dispute.

Date Signed

If an entrant is a non-member of the R.S.G.B., he must sign the following additional Declaration:—

I hereby certify that at the time of the Contest I was a fully paid-up member of

Date Signed

PREFIX ZONE CHART AND SPECIMEN SCORE ANALYSIS SHEET

Prefix Zone	...Mo.		...Mo.		...Mo.	
	Contests	Points	Contests	Points	Contests	Points
D2, EI, G, GC, GD, GI, GM, GW ..						
J4, VSG						
MB9, SVO, X ..						
MD1, Z, ZB1, 2						
MD2, 5, ST, VQ8 (MD4)						
MD6, VSD, VU7 (VSS)						
VE1 ..						
VE2 ..						
VE3, 4 ..						
VE5, 6 ..						
VE7, 8 ..						
VE9, 3, 7 ..						
VK4, 9 ..						
VK3, 6, ZC2, 3						
VQ1, 2, 3, 4, 5, 6						
VP1, 5, 7, 9 ..						
VP2, 3, 4, 6 ..						
VP3, 9 ..						
VQ1, 2, 4, 5, ZD6						
VQ2, ZE ..						
VQ3, 9 ..						
VR1, 2, 3, 4, 5, 6						
ZK1, 2, ZM ..						
VW1, 2, 4, 5 ..						
VW7 ..						
VU5 ..						
VU6, XZ2 ..						
ZC4 (MD7), ZC6						
ZD1, 2, 3, 4, 8, 9						
ZL1, 2, 3, 4 ..						
ZN1, 2, 3 ..						
ZN4, 5, 6 ..						
TOTALS						

RECEIVING CONTEST

The entry form for this Contest should be prepared on the lines set out above with the following amendments:—

Column 2: GMT station heard.

Column 4: Station heard.

Column 5: Entrant's report on station heard.

Insert new Column: Station being worked.

Column 6: Serial number given by station heard to station being worked.

MAKE SURE YOU HAVE READ THE RULES CAREFULLY AND DO NOT FORGET TO SIGN THE DECLARATION AT THE FOOT OF THE FORM. SUGGESTIONS FOR FUTURE CONTESTS ARE INVITED.

THIS COULD HAPPEN TO YOU

By LEITH COTTON*, VK5LG

The following is a copy of a recent newspaper cutting:—
"The recent sad fatality where Mr. L. S. Cotton, a prominent Radio Experimenter, was accidentally electrocuted at his home last week only proves how dangerous electricity is—the sad part about this case was that Mrs. Cotton, seeing her husband lying dead, caught hold of him and was also killed. Cotton, who operated VK5LG was carrying out experiments with other Hams and did not switch off his gear while making alterations, thus at a blow a whole family was wiped out."

This is a fictitious cutting, but read on:—

Sad aint it, mate, but it could and can happen to you or me—I very nearly clicked. I caught hold of the wrong lead and the earthed shielded cable from my pre-amp was resting on my neck. I collected 750 volts a.c. and am lucky I was thrown 10 feet. I might have been lowered 6 feet—into a hole.

Brother Ham, perhaps you were still wet behind the ears when Ross Hull (A5JU) was going, but he, to a great extent, re-organised Ham Radio and made the game like it is today. Ross preached "safety first" as a member of A.R.R.L. staff, but he got his from a television receiver.

Look through the records, dozens of Hams have been injured or killed by the bite from the rig—far too numerous to name individually. Every day we read of somebody in all walks of life dying of electrocution, yet we still go on mucking about with our own little deathtraps.

Friend Ham remember this, "Death is permanent, electricity helps make it so."

I will refrain from telling you how to place fuses and switches but brother, before you do anything at all on that rig of yours, see all switches are OFF, all circuits are dead, all condensers are discharged.

Does your wife, your son or daughter, your mother, your father, your friends know where the main switch is placed? Can they reach them in a hurry? Ten seconds is enough in boxing or sparks. Do they know what to do should they come and find you hunched up across some wires, etc?

Do you know what to do if you walk into a pal's shack and find him in such a condition? Learn my friend, learn—take your relatives or pals, show them the lay-out AND ALL SWITCHES. Explain to them and if you do not know artificial resuscitation, LEARN IT PRONTO. The Schafer method is simple and easy to learn and memorise, and if in its use you only save one life, it is time well spent.

Any person versed in ambulance work or a St. John Ambulance member

will be only too pleased to demonstrate to you and instruct you.

Remember employees of power companies or trusts are not allowed to work on even 240 lines unless a mate stands by. Yet you are playing with 500, 600, and 1,000 volts all on your pat, risky? Yes, but with simple precautions, not so risky, and the precautions are your own personal pigeon.

I'm lucky, I was careless but I live to tell about it. Perhaps I was spared to preach the gospel of safety first to others; perhaps the resistance of my body was greater than the current expected; perhaps "Someone up above" reached His hand for the big switch and then stayed it, for what reason I may never know; perhaps, perhaps, perhaps.

Now when I want to change coils, leads or what have you, I put off all switches and go collect the fuses before the gear gets even examined. Yeah, in my trade, structural steel boilermaker, I have often to climb great heights into awkward places and early I learned that climbing is played for keeps. There are no second chances for the careless; the earth is as hard at 20 feet as it is at 100. Remember the power supplies of your gear at home, or even portable, plays keeps also and so don't give it even a first chance. Fellow Hams remember Ross Hull, Phil Murray and others and be careful; have good earths right leads and patience enough to go for that switch. A LIVE VIOLET IS BETTER THAN A DEAD ORCHID, so 73 and c.u.l. from "Five Little Girls" in South Australia.

Browsing around recently I read this: "The Radio Amateur regards his position with a great deal of pride. He has obtained his licence by learning many necessary facts about radio and by learning the International Morse Code well enough to send and receive messages at the prescribed rate, or better. An examination is held to determine the fitness of the applicant. Applicants passing the examination are granted an operator's licence. This licence, which may be revoked for violations of regulations, is zealously guarded by the holder as his certificate of membership in the fraternity of Amateur Radio Operators." I think it is worth repeating—AND THINKING ABOUT during 1948.

Bright Star Radio

VK3UH

1839 LOWER MALVERN ROAD

GLEN IRIS, S.E.6, Vic.

Phone: UL 5510

TAYLOR TRANSMITTING TUBES

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Crystals as illustrated.



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AT or BT cut. Accuracy 0.2% of your specified frequency.
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* 317 Cross Rds., Clarence Gardens, S.A.

FEDERAL NOTES

Federal Secretary: W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

DX C.C. RULES

Due to several anomalies which have arisen over the checking of confirmations by Divisional Officers so appointed under Rule 12, Federal Executive have decided to appoint an Award Committee to check all cards from claimants, in order that central records may be kept and so obviate future difficulties. The Committee will consist of the Federal QSL Manager, the Federal Traffic Manager and the Federal Secretary. All claimants for the Award should now send their cards for checking to the Federal Executive, Box 2611W, Melbourne. The amended rules will be published in next month's "A.R." and all applicants must be certain that it is clearly stated on their list whether the contacts are for c.w. or phone.

CERTIFICATES

Federal Executive have in hand the printing of certificates for various Contests and Awards. A new Membership Certificate is also being printed, which will be issued to all members of the W.I.A. of all grades, and endorsed accordingly. This Certificate will fill a much-needed want, and from a preview, is an attractive one that will honor the wall of any Ham's shack. The W.A.S. and DX C.C. Certificates are also off the press, and are well worth striving to obtain. Sufficient stocks of the various Certificates will be on hand to last for several years.

CONVENTION

It has been agreed to hold the 1943 Federal Convention in Melbourne on the 26th, 27th and 29th March. All members should contact their Divisional Councils with items to be included on the Agenda for the Convention, as early as possible. The due date for Agenda items to be in the hands of Federal Executive is the 14th February, so make sure you air any grouches before then.

HAMS WHO LOST THEIR LIVES DUE TO SERVICE

VK2AJB—G. C. Curle	Unknown
VK3DJQ—J. D. Morris	A.M.F.
VK3JHN—J. McCandlish	A.M.F.
VK3JE—J. E. Mann	R.A.N.
VK3JG—N. E. Guter	M.N.
VK3OR—M. D. Orr	R.A.A.F.
VK3OW—G. L. Templeton	R.A.A.F.
VK3PL—J. L. Colthrup	R.A.A.F.
VK3PV—R. P. Veall	A.M.F.
VK3SF—S. W. Jones	A.M.F.
VK3UW—J. A. Burrage	R.A.A.F.
VK3VE—J. E. Snaddon	R.A.A.F.
VK4DR—D. Laws	A.M.F.
VK4PR—R. Allen	R.A.A.F.
VK5AF—C. A. Ives	R.A.A.F.
VK5GP—G. Phillips	R.A.N.
VK5—J. Mann	R.A.N.
VK6GR—A. H. G. Rippen	R.A.N.
VK6JG—J. E. Goddard	R.A.A.F.
VK6KS—K. Anderson	A.M.F.
VK7LP—L. P. Hyland	A.R.P.

The above names and details have been received by Federal Executive.

Anyone knowing of any name not included on the above list or errors therein should communicate with F.E. at the earliest.

MD5BU'S SHORT VISIT

Early in December, just after the January issue went to press, we had a telephone call from Major Ian McAnsh MD5BU who is located in the Suez Canal Zone, Egypt. MD5BU was on his way to ZL which is his home country where his father operates under the call of ZL4IC.

Unfortunately Major Ansh had only 24 hours in Melbourne, but some very interesting information was obtained over the telephone.

MD5BU is associated with MD5KW, ex-GSKW and is operating on 50 Mc. (in fact a spot frequency of 50 Mc.), with a 4 element rotary beam, beamed on VK and ZL between 3 and 5 p.m. Melbourne time. An auto head is used to send at varying speeds between 5 and 25 w.p.m., and will reply on 28 Mc. Should anyone hear these signals, reports can be forwarded via G5BY or G6DH.

Some interesting contacts made by MD5KW on 50 Mc. are two way contacts from the Canal Zone with G5BY, PA0UN, ZS1IT and VQ3.

Some may be wondering about the MD call signs and for those unaware of their origin the following information should clear up their doubts.

The MD call signs are issued only to the British Army, to Forces' Amateur Stations only in areas occupied by the Services.

- MD1—Cyrenica.
- MD2—Tripolitania.
- MD3—Eritrea.
- MD4—Somaliland.
- MD5—Suez Canal Zone, Egypt.
- MD6—Iraq.
- MD7—Cyprus.

In ZC6, Palestine, the only licensed Amateurs are those in the Forces and having the suffix J or N, others are not officially licensed.

MD5BU also operated under the call of XABU, Rhodes, Dodecanese Islands, and would very much appreciate cards from those VKs he worked and have not yet QSLed. He expects to be back in Egypt in about three months' time and will again be active as MD5BU.

CHANGES IN CALL SIGNS, ETC.

ALTERATIONS

- VK2ACB—W. J. Zech, "Grand View," Cliff Drive, Katoomba, N.S.W.
- VK2ADQ—E. J. Darr, 133 Burns Bay Rd., Lane Cove.
- VK2AIF—P. C. Barron, Unit 169B, c/o. R.A.A.F. P.O., Lindfield.
- VK2AG—(in lieu VK3GH)—R. K. Phillips, 81 Monbren Rd., Monbren.
- VK3AIS—J. F. Graydon, 60 Fiddens Wharf Rd., Killara.
- VK3AJC—J. E. Ives, 57 Douglas St., Stanmore.
- VK3AMO—R. B. Lloyd, McBride Ave., Hunter's Hill.
- VK3DJM—D. J. Johnson, Flat 9, "Glenlea," 37 Glen St., Milson's Point.

- VK3EP—J. F. Small, "Kobada," Terrimont Rd., Warramoo.
- VK3EL—S. Bourke, 2 Collingwood Ave., Earlwood.
- VK3FP—M. Stann, Lot 33, Wentworth Rd., Lakemba.
- VK3GS—G. P. Edwards, 33 Denman Ave., Wiley Park.
- VK3IU—M. J. McDonald, Ferguson's Radio, 113 McMahon's St., Willoughby.
- VK3JD—J. Davis, Eacerton St., Lidcombe.
- VK3MJ—A. T. Crisp, 60 Silver St., Marrickville.
- VK3QB—(in lieu VK2ASD)—S. T. Clark, 37 Jeffery St., Canterbury.
- VK3R—W. B. Archer, 9 Fulbourn Ave., Penzance Hill.
- VK3UG—(in lieu VK4MM)—J. H. W. White, 115 Stewart Ave., Hamilton, Newcastle.
- VK3YA—R. C. Black, 29 Kurrageon St., Sutherland.
- VK3YD—W. S. B. Pettitt, 101 Davidson Ave., Nth. Sydney.
- VK3APR—(in lieu VK2AP)—A. P. Reynolds, R.A.A.F. Station, Ballarat, Vic.
- VK3BD—E. H. Ferguson, 171 George St., East Melbourne.
- VK3DA—G. M. Thryhall, 115 Kookeyng Rd., Caulfield.
- VK3ED—D. O. Jones, 247 Napier St., Nth. Essendon.
- VK3HM—J. Holcicher, 88 Egan St., Richmond.
- VK3JL—R. Arvo, 65 Kenmore Ave., Hth. Hill.
- VK3LM—R. L. Craner, 107 Green St., Richmond.
- VK3MP—R. J. Bell, Paul St., Cheltenham.
- VK3MI—H. Cunningham, Brunson Ave., Frankston.
- VK3OS—C. A. Rowles, 35 Charnwood Rd., East Kildare.
- VK3PO—S. Kilda, Orchard, The Esplanade, S. Kilda.
- VK3QR—E. H. Jenkins, Churchill Island, via Newhaven.
- VK3RO—VK3ARD—R. J. Biddle, 4 Thackeray Street, North Belwyn.
- VK3RG—(in lieu VK3CQ)—M. R. Quick, 500 Dryden St., North Melbourne.
- VK3RW—R. P. White, 35 Faircroft Ave., Hawthorn.
- VK3ZD—G. H. Mull, 23 Dryden St., Canterbury.
- VK4G—(in lieu VK3BY)—W. H. Holland, c/o Mrs. S. Stewart, P.O. Box 29, Mundubbera, Queensland.
- VK4CG—R. V. Gold, 20 Curson St., Range, Toowoomba.
- VK4HF—J. F. Ball, 37 Glen Park St., Nth. Mackay.
- VK4JQ—(in lieu VK2YQ)—L. N. Page, 16 Terrace St., Paddington.
- VK4KD—D. D. Morris, c/o. Dept. Civil Aviation, Canberra.
- VK4BI—D. R. Keigs, Jarvis St., South Plympton.
- VK4BS—(in lieu VK2ADR)—B. S. Clarke, "Wardnuffe," Karong Ave., Mirreem, via Edwards-ton.
- VK4GM—A. R. Anderson, 68 Canterbury Ave., Wexham South.
- VK4RI—R. J. Haskard, 194 Anzac Highway, Plympton.
- VK4GJ—J. M. Gibson, c/o. Station #WA, Minding, via Wagn, W.A.
- VK4WG—W. W. Green, Pensioer Rd., Albany.
- VK4YT—Rev. C. J. Zimmer, Lamasong, P.O. Batavia, T.F.N.G.

CANCELLATIONS

- VK2AGP—F. M. Leyden, 7 Albert Pde., Ashfield.
- VK2AMF—F. M. Carey, 35 Ridge St., Nth. Sydney.
- VK2ANE—E. Sherlock, S.S. "Cherisey," c/o. Gillies, O'Connell St., Sydney.
- VK2ANL—L. D. Boyle, 29 Bligh St., Sydney.
- VK2ANO—J. A. Hunt, 13 Oxford St., Burwood.
- VK2ANP—F. F. Brown, Bundamba.
- VK2DR—E. J. Dunne, 35 Beaumec St., Merrylands.
- VK4ES—W. W. Layton, 32 Clarence St., Campsie.
- VK3VL—T. T. Nutman, 26 Bonnet Rd., Hunter's Hill.
- VK4XP—W. C. H. Haynes, 19 Jarvie Ave., Peters-heden.
- VK3ATH—C. R. Matheson, 33 Elm Gve., North Essendon.
- VK3PF—J. K. McCarthy, "Brentwood," 420 St. Kilda Rd., Melbourne.
- VK3WC—C. W. Welsh, Flat 9, Victoria Court, Victoria Ave., Albert Park.
- VK4AL—A. D. Lum, 39 Edmond St., Hyde Park.
- VK4AJJ—J. C. Jennison, 4 Ross St., Black Forest.
- VK7MF—K. M. Kelly, 174 Macquarie St., Hobart.

NEW ISSUES

- VK2ADG—F. Avenet, 1 Derravan Gardens, Reid, Canberra, A.C.T.
- VK2AEL—J. H. Pickett, 13 Crane St., Homebush, N.S.W.
- VK2ADM—J. M. Agar, 5 Ravonon St., Rockdale.
- VK2ALJ—J. H. Rogers, 33 Kent St., West Sydney.
- VK2AJR—M. L. T. Rudder, 5 Moss St., West Hyde.
- VK2AMG—D. M. Finn, 68 Augustus St., Leichhardt.
- VK2ARG—R. G. Goodall, Pacific Rd., Palm Beach.

VK3ART—R. Hodgins, S.S. "Echuana," c/o. Interstate Steamships Pty. Ltd., Wall St., Newcastle.

VK3AW—W. J. Cromie, 99 Oyster Bay Rd., Oyster Bay.

VK3AW1—W. B. Dwyer, 67 Giebe Rd., Merewether, Newcastle.

VK3AZ—C. H. Thompson, 48 Consett St., Concord West.

VK3M—Mrs. J. A. Milles, 22 Hume St., Wollswanger.

VK3N—L. R. Cameron, 24 Elizabeth St., Mayfield.

VK3O—H. Goss, 12 Duffell St., Newtown.

VK3P—W. L. Pitt, Olive St., Seven Hills (Port. abt. S.S. "Iron Baron").

VK3Q—R. Porteous, 14 Barry St., Crowsley.

VK3R—W. B. Edwards, 15 Hinkler St., Brighton Le Sands.

VK3RY—L. L. Brown, 7 Day St., Dreaming.

VK3S—W. A. Scilling, 9 Vere St., Cronulla.

VK3SW—S. R. Ward, 106 Bassett St., Hurstville.

VK3TS—T. G. McKean, S.S. "Nankin," c/o. E. A. Steamship Co., Collins St., Melbourne.

VK3WM—J. E. Paris, 8 Welcome St., Parkes.

VK3X—C. Case, Cumming Ave., Birchip.

VK3Y—A. E. Fisher, 8 Grange Ave., Canterbury.

VK3Z—E. O. Phillips, Blackadder Mains, Long Warry.

VK3A—G. S. Vincent, 41 Skene St., Colac.

VK3AK—H. H. Rimmer, Portable of VK3KN within 50 miles of Melbourne.

VK3AN—N. H. M. Chapman, Whitton St., Trafalgar.

VK3AO—E. F. O'Brien, 21 Swallow St., Shepparton.

VK3AP—P. F. Fawcett, 188 Welford St., Shepparton.

VK3AQ—P. J. Grigg, 3 Phillott St., Geelong E.

VK3AR—W. Harwood, "Rosebank," South Syncline.

VK3AM—R. J. Mitchell, "Coolatoe," Serviceton North.

VK3AR1—R. G. Henderson, 18 Madden Gve., Burnley.

VK3AW—W. N. Newham, 258 Barker St., Castlemead.

VK3MH—E. M. Chaffer, c/o. Station 3RA, Ballarat.

VK3NV—N. B. Voller, Flat 8, 9 Yarra St., Hawthorn.

VK3O—H. H. Ballmann, 43 Yarra St., Warrnambool.

VK3V—W. B. Bridges, 114 Lenton St., Ballarat.

VK3Y—N. S. Smith, 11 Durham Rd., Surrey Hills.

VK3Z—R. A. Williams, 45 Banelo Rd., Balwyn.

VK4EB—H. Clayton, Mt. Perry Rd., Nth. Baulkham.

VK4EP—H. A. L. Fitzalan, Roseleigh Rd., Kallangra.

VK4EJ—H. J. Champion, 9 Denham St., Mackay.

VK4J—J. R. Rindell, "Rose Knoll," Windsor Ave., Lutwyche.

VK4KP—S. J. Mitchell, 35 Blackmoor St., Windsor.

VK4N—C. O'Brien, Jarline St., Stafford.

VK4RL—R. L. Guthormsen, Thynne St., Morning-side.

VK4SW—A. W. H. Wright, 539 Marion Rd., Stb. 10, West.

VK5PB—E. P. Brandon, 76 Gloucester St., Prospect.

VK5VM—J. L. Muller, Mitchell St., Crystal Brook.

VK5WL—W. L. J. Jones, 18 Brown St., Woodville West.

VK5X—A. W. Souden, 1201 Hay St., West Perth.

VK6CP—F. R. Whitefield, Kelomud Rd., Kattanning.

VK7AK—S. W. Carter, Lewis St., Longford.

VK7DB—D. C. Brooks, 31 Albion St., Launceston.

VK7LT—L. E. Templeman, 19 West Tamar Rd., Trevalyn, Launceston.

VK7PK—P. W. King, Marquarie Island (Antarctic Expedition).

VK7P—J. J. Exell, Derwent Ave., Llandisfae.

VK9B—A. G. Wilkey, Murray Barracks, Three Mile, Port Moresby, T.P.N.G.

VK9DC—A. C. Cameron, c/o. T.C. L., T.S. T.P.N.G.

VK9J—P. F. Perri, Aerod Station, Lae, T.P.N.G.

FEDERAL QSL BUREAU

Ray Jones, VK3RJ, Manager

An interesting QSL to hand this month is from UA3CA, the call sign of the Aero Radio Club, Moscow, and the card displays a balloon under which is the photograph of three of the operators. The wording on the card indicates that QSOs with UA3CA are made when the balloon is "in the air above Moscow."

At 2030 EST on 7th December the writer heard ZL1JM calling "CQ Melbourne." On investigation the ZL told me he urgently desired to contact J4AAM who at the moment was QSOing VK3JW on phone. Could I get VK3JW to tell the J to listen on 14012 Kc. for c.w.? A phone call to VK3JW elicited the information that he had signed off

with the J, who was now in QSO with VK3YH. VK3JW offered to and did bust in on VK3YH's frequency and passed on the message to the J4 who however could not listen on the specified frequency because of commercial interference. He however detailed a nearby J station to deputise for him and the desired contact was made within 30 minutes of the original request for QSP. Neat work by all concerned.

The Federal QSL Manager will be on annual leave from January 1 to 23 inclusive and mail during that period will be subject to some delay. The month of December, 1947, almost eclipsed the all-time record for cards handled—backwash from the VK International Contest and yours truly feels in need of the vacation. Fervent prayers for lots and lots of rain during December having been answered—50 Mc. enthusiasts please thank me—writer intends spending portion of the vacation period solo in the hills courting the elusive yellow metal and hoping to help Ben Chiffley solve the dollar problem. Where? Ah, that would be telling, but far away from QSLs and CQs.

From W2CC comes the news that Marj Hutchings, ex-VK3HQ, and now of the occupation forces in Japan, became on October 22 the wife of F/Sgt. Williamson. Congrats Flight on your good fortune and to you also Marj.

Dud Charman, G6CJ, in acknowledging a private food parcel, gives an insight into some of the many problems confronting the R.S.G.B. at present. R.S.G.B. has nearly 20,000 members and assets held total £1 per member. Restrictions limit the size of the T and R Bulletin to 20 pages monthly, a brand spanking new 1/2 Kw. Xmitter for its HQ station is idle for the want of a house and someone to operate it! After sampling the air congestion in London for some years, Dud again appreciates the comparative quiet of Stoke Poges.

My SOS for an English translation of a Spanish letter met with a prompt and ready response from VK2VS of Canberra. Many thanks Amigo.

Writer has had the Rx on 50 Mc. for many months and listens extensively on that band with the aid of a dipole and hears all that is going. The absence of c.w. on the band precludes him putting a Tx to work but the dulcet tones and windy verbosity of many of the addicts of the band provides a nice obligato to the shuffling of QSL cards when sorting same.

Best wishes for 1948, is my concluding thought, to all readers and especially to my State QSL colleagues. Many thanks for your co-operation during the past year. This management of a QSL Bureau is a gripping pursuit. VK5RX has devoted approximately 16 years to it, Jimmy Corbin VK2YC the same length of time and the writer a similar period. We all still enjoy a nice card (of normal size).

Please, please, will someone tell me where to dispose of VK1 cards? It looks a little fishy to me as of all cards held for VK1 none are for contacts with English speaking countries.

NOTICE

The Magazine Committee is desirous of obtaining for publication station descriptions and a photograph of the gear suitable for reproduction.

The Committee also request all Correspondents to see that their notes are received by the Editor on or before 15th of each month. Copy arriving after this date will NOT be considered for publication.

Low Drift Crystals

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AMATEUR BANDS

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STATED FREQUENCY

3.5 M/C and 7 M/C

Unmounted .. £2 0 0

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12.5 and 14 M/C Fundamental Crystals, "Low Drift" Mounted only £5.

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Maxwell Howden

VK3BQ

15 CLAREMONT CRES.,
CANTERBURY, E.7.

receiving end of some narrow band f.m. from 2BZ. Owen reckons it's fine. 2BZ has one ideal, 28 Mc. post-war W.A.S. 2BPT missed on all bands, on holidays and no radio!! 2PZ going to assemble some of the gear! 2KR and 2GA on 7 Mc. Most of the 50 Mc. boys got amongst the ZLs when they broke through on 50 Mc. 2XT on the special Coalside. Not each Sunday morning.

SOUTH COAST AND TABLELANDS ZONE
2GU has been heard working 2CM crossband. 2JU has acquired a new crystal and can be heard with the Home-to-Lunch Club. 2AKS has a Type A Mark III and will go QRO (?) after many years on 2 watts. 2ALS has two receivers and two transmitters, but is still sentimental on QRP. 2YA and 2YC are mainly on 50 Mc. 2YJ and 2ABJ are very seldom heard these days. 2ANN ran 813 into ground trying to hear 2EO, and is trying to correct an internal short. 2DQ contributed these notes in lieu of 2ANN; the former worked XE1FO on 7 Mc. 2YM. 2MT plays about with V.L.O's. A new Radio Club has started in Wollongong.

SOUTHERN ZONE
2YB (ex-3FG) and 2YL visited Albany for Xmas vacation. 2APW built new rig with 807s p.p. up to 40 foot. 2QD wants to shift back to Albany and a.c. the wide open spaces don't appeal. 2QJ doing a little on 7 Mc., listening on 14 and 28 Mc. 2ANQ ready for action when aerial goes up. 2VK finished local servicing and now grinding crystals for 2PT. Would like to hear from the Wangaranga; a few notes to 2QJ at Albany.

WESTERN ZONE
2ACT been gone places and working portable. 2ACU from Cowra has a new final. 2NS playing with antenna, worked F8EO long way round on 7 Mc., contact was at 1830 hours E.A.S.T. 2WHL now known as the whispering Ham, still hopes to get the V beam going on 14 Mc. 2II playing about with new transmitter ex-disposal, has motor running. 2BT with a fine quality, building converter and erecting saw for 28 Mc.

2JV returned from Sydney after motor cycle trip; saw the gang down there. 2TG has new modulator and mike, claims it is better. I have my doubts. 2ALV with 12 element on 12 Mc., getting his share, one of the finest phone signals on air. 2DQ Broken Hill, heard on 14 Mc. phone, a change for Dad, how about some news from there for those notes. 2QA has 5 element on 28 Mc. and doublets on 3.5, 7 and 14 Mc. also cleared ham from modulator (we hope). 2LX at building for all bands. 2M0 Mountain Hams 2LZ, 2APO, 2PI are exclusively on v.h.f. 2HZZ DX crank, 115 up post-war. 2ACOP on 7 and 14 Mc. c.w.

SILENT KEYS

VK2ALD

The South Coast and Tablelands Zone of VK2 Division lost a very ardent Amateur when the Rev. R. B. Dransfield (VK2ALD) passed on. Better known to N.S.W. Amateurs as "Reg," he spent most of his time training budding Hams, and to his memory we have many Amateurs who received their initial training from Reg.

His association with the W.I.A. goes back over 20 years and he presented many lectures to the N.S.W. Division in the late twenties. Reg will be missed on 7 Mc. VK2QJ, Rev. G. A. M. Neil, conducted the service and floral tributes were received from many Amateurs throughout Australia.

VK3TM

With deep regret, and with sincere sympathy to Mrs. Buck and family, we mark the passing of VK3TM at Moorooka Base Hospital on 3rd January, 1948.

VK7JW

It is with deep regret that we have to record the passing of Mr. "Jack" Wallace, VK7JW, who was accidentally drowned in the South Esk River at Longford while on a fishing trip.

7JW will be remembered as one of the old timers who graduated through the 80 and 200 metre bands. His help and guidance was instrumental in getting at least two of our present members licenced.

Prior to his death he was operating on the 7 Mc. band and had almost completed a new receiver with the object of working the higher frequencies.

To his wife and family we extend our deepest sympathy.

The outstanding item of recent events was the annual State Convention held in Melbourne and attended by representatives of Country Zones and members, the comprehensive agenda presented for discussion being dealt with, the review of the outcome of which, will no doubt be awaited with the fullest interest.

In refusing to accept the resignation of Mr. Jim Marshall as Treasurer, Council preferred to grant leave of absence and held pleasure in granting an honourarium to Jim for his sterling services rendered to the Division in the past and also in his capacity on the Magazine Committee. Mr. Arthur Evans (3VQ) has volunteered to carry on as Hon. Treasurer in the meantime.

The Magazine Committee have been unfortunate to lose the services (temporarily, we hope) of Mr. Ken Ridgway (5UR). Ken, who has held the post of Technical Editor of "Amateur Radio" since 1942, has reluctantly been forced to resign owing to pressure of business. Mr. J. Duncan (3VZ) has been appointed to fill this important post on "Amateur Radio."

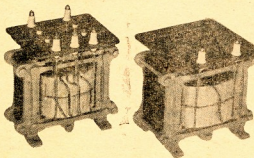
At the last Council meeting a further list of applications for membership had been received and at this stage it must be noted that 80 per cent. of all licenced Amateurs in this State are members of this Division. The Federal Constitution of the Wireless Institute of Australia, 1947, as presented by Federal Executive has been accepted by Council.

The sub-committee elected to promote competition for the Gaisford and Kennard Trophies have made recommendations to Council and these have been further passed on for discussion at the Convention.

CENTRAL WESTERN ZONE

These notes, I am afraid, will reflect the holiday spirit of Christmas by being almost absent. To begin with, everybody in the Zone has either been away on Christmas or been too busy with harvest or shop work to engage in our most important occupation of hamming. At least two visitors passed through the Zone over Christmas, SCE of Berrillwood, and 3DI of Leongatha. Roy was enroute with family to Portland for a well-earned rest after harvest. Jim was caravanning (I think) round the State, his modified F80 certainly puts out a signal on 3.5 and 7 Mc.

Ye scribe was disappointed when 3VL and 3US failed to materialise prior to Christmas as I was looking forward to a 50 Mc. check, however I have since actually heard a 50 Mc. signal (3S) but still don't know who it was (please blokes don't run your carriers without a signature). 3PI is



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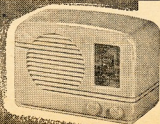
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H.F.P.

North and South notes look like overlapping somewhat this month as a result of a long Sub-Editorial stay in the North and South. Our main intentions were to do with laying in the land and working the world with a Type A Mk. III, but a considerable number of them were just sent to us to battle through on 7 Mc. with five watts, and spare time was very probably diverted to visiting the northern gang.

These chaps are really going places on 50 Mc. 7XK and 7AH particularly, who were working VK3 and 7AH as though they were just across the sea. A simple type of three element rotary is used in both cases, consisting of condenser elements mounted directly on wooden poles and fed by coaxial cable. Also visited were 7BQ, 7IZ and 7GD in Launceston. The talk—fortunately—wanders sometimes away from radio on occasions, but the time, if the time of a 24-hour day, encountered is to be called Ham Spirit, there is room for a few million more people in this game.

Now, as a further result of our being away from Hobart, the account of this month's meeting is to be culled from both notes. The job is approached with some trepidation, since a similar attempt to work up some readable copy recently tried (it has been said) to induce the loss of a radio, which you apparently brings an unduly earnest frame of mind to reading this stuff. He's really a good bloke, really, and I don't think he's doing it in any inevitable fashion, it serves him right for not restricting his remarks to the right quarter. The moral, brethren, is this: There's complain about people stealing your thunder; it is the essence of obscurity. Like some of these notes.

There were thirty-one present at the meeting, including visitors in the shape of Mr. and Mrs. J. Hutchins (7JB and 7YU) and Mr. H. Cullender of Victoria.

Our old friend of three field days' duration, Frank Mills, has become an Associate Member, and the dinner committee once more consists of 7RF, 7OT and 7CW. At last it shall if 7CT doesn't desert. And what about the 7YU's? Well, they're the "Kurewa 11." Terry, by the way, expects to be operating 7CT Mobile while aboard the yacht which is a competitor in the Auckland-Sydney race.

The Food for Britain Appeal has gone ahead by another 100 lbs. due to the donation of a 750W power supply by 7KA, to be raffled at a PSSA ticket.

7KA is leaving us shortly for VK3, and in farewell him we also congratulate the Victorians in acquiring a good chap.

Proceedings ended with a lecture by 7JB, dealing with a modern radio-communication system.

Early in December a gathering of some fifteen Hobart Hams was held at the house of our G.O.M. "Pop" McHurst, who seems to take a new lease of life every time someone mentions radio. It's time to read that mellow list again, Pop—how about it?

NORTHERN ZONE

The strength of this Zone is gradually increasing and we are now getting 2 Mc. phone at present on the air in the near vicinity of Launceston on two nights. Visitors to the Zone this month included G5UB, VK5OM, VK6ANI and VK6PA, and our various members co-operated to the best of their ability entertaining their guests.

Although we cannot show much in the way of equipment to visitors, I feel quite safe in saying that all these Hams enjoyed their personal contacts with our various members. What we like about old times to 30J and 7PA, working DX for SANL and showing G5UB the sights, our time was fully occupied.

Station activity this month is as follows:—7GD and 7DI are both working 2 Mc. phone at present and both these stations appear to be getting out quite well. 7CI is also getting a few QSOs in during the day hours. As for 7BQ, is still keeping up with his deeds on 7 Mc. and also keeping a check on 50 Mc. Len has worked VK2, 3, 4 and 7 on the latter band.

7DR has been heard on 3.5, 7 and 14 Mc. Hugh might be looking for a lost kilocycle or something. 7RII spent the Xmas vacation rebuilding and is now back on 14 Mc. chasing bigger and better DX. 7IZ is that dashed busy writing letters, notes and QSOs and finding time to do anything else, doing that he hasn't had time to do anything else.

DISPOSALS

Editor, "A.R." Sir,
From letters and by listening round the bands, it is obvious that many inaccurate rumours are circulating regarding Disposals. I am a Disposals and the VK3 Disposals Committee in particular.

Several Amateurs have been very noticeable; some not even being W.I.A. members, for some obscure reason of their own are spreading stupid, mischievous and even malicious rumours that are entirely unfounded. Such an anti-W.I.A. attitude can only result in the loss of all the members, who all owe the conditions they now enjoy largely to W.I.A. efforts on their behalf.

All official W.I.A. news concerning Disposals will only be promulgated by sending official correspondence to the Division or Divisions concerned who will in turn pass it on to the parties, at regular meetings, by circular or by broadcast over official Divisional Stations. For obvious reasons, detailed information concerning quantities, prices, availability, etc., cannot be given in these columns or "over the air."

We ask all members to help us and themselves by avoiding all mention of prices in these columns or by referring only to purely technical details. Do not repeat any rumours you may hear and do so all you can to stop them.

We realise that most members would like much detailed information and we would like to be able to reply to all individual requests, but as the work of obtaining, storing, sorting and distributing the gear is taking all the spare time of those members concerned, this is impossible. Therefore if your letter has not been answered, do not assume that we have just ignored it. When you receive any circular, read them carefully and do exactly as you can to help us to get the gear to you as quickly as possible.

We ask you all to realise that our sole object is to obtain, for W.I.A. members, the gear in which we believe they have an equity, in the best manner and at prices to suit the average Ham's pocket.

We are well aware that many members have no direct disposal of gear, but we are not asking them to try to help them as much as possible. If you hear of "bargains" and our prices being compared unfavourably to the market, do not assume that the condition of our gear compares equally unfavourably before you buy.

But for reasons beyond our control, we cannot achieve results as quickly as we would like, so we ask you to be patient while we are doing our best to satisfy your wishes.

We trust that this lengthy letter has now cleared the air satisfactorily on Disposals matters.

Yours faithfully,

DISPOSALS COMMITTEE.
Victorian Division, W.I.A.

WHY SIMPLER ARTICLES?

Editor, "A.R." Sir,
I, Byron SS, Box Hill, E.11
What's the strength of these pleas for simpler articles? After all "A.R." is presumably published for the benefit of the amateur, and it is not as if a person is an Amateur presupposes that he has passed a technical examination. (If he hasn't, I don't think he'd be good enough to advertise the fact.) In other words he's supposed to be starting off with a working knowledge of the fundamentals of what the W.I. call "the electron art."

It seems to me that the majority of "A.R." readers should be more interested in making a forward step in their knowledge than in re-reading the elementary stuff they had to know in the first place. Anyway, my experience has been that the chap with little or no knowledge of the theory behind the job has a general sense a hour of it.

If you don't know why a piece of equipment works, how the ——— are you going to find out what's wrong when it ceases to function? And a knowledge of the theory and therefore behind the construction of radio gear helps when you have to substitute pieces you have got for pieces you haven't. Many of these fundamentals are covered by a book, get a 0.5 uF condenser, put in a 0.05 or just leave it out altogether, when a little thought and understanding will tell you that the value was critical, and what they could do about it.

Anyway, there are plenty of layman publications that do provide simple articles for the man who wants to be spoon-fed. Much of the stuff that "A.R." becomes a poor man's "Electronics" or an I.R.E. Journal, but I do think that we could do much more to help the amateur and make the folks that want to warm their theoretical knowledge. In other words, let's have all kinds of articles on all kinds of things, and let's find something interesting and instructive for their six bob a year.

In conclusion, I would suggest that VK3GE (and others) have a look at QST for August, 1947, and

read WEIAY's article on TVI. It is a good example of how theoretical considerations can lead to a solution of a problem, and who would suggest that an Amateur magazine should not publish such a useful contribution to Amateur knowledge?

Yours faithfully,
F. C. JOHNSTON, VK3EL.

SUGGESTIONS

Box 342 P.O. Narracoote, S.A.

Editor, "A.R." Sir,
I have, for quite some months now, been going to look to you and offer some suggestions, etc., on what I may have opinions would improve your magazine. However to be quite frank I've been too lazy to do so and it was only after looking through the December 1947 issue and reading your article that I felt the time had arrived for this letter. I most heartily agree with 3GE's letter and article, and I am sure it will be of great help.

Like him I don't believe the efforts of the people who contribute the articles but for at least 85 per cent of the articles at all. They're too boring for one thing and for another most of the articles are far too technical for the majority of us (including myself, I must confess). For the technically inclined excellent overseas books are available at small cost and more often than not include the practical side of the work.

I like to open up the mag. and get at the practical side at once and start out duplicating the article. While I ask you not to waste through pages of algebraic equations, etc., and wind up wondering what's it all about?

Cannot the Magazine Committee get city Hams (if not country) to contribute articles on gear, antennae, station layouts and what not. If the Hams themselves W.I.A. NOT send in articles (I agree Mr. Editor that they are too lazy to send in articles and I'm no better than most), what's wrong with having a paid Ham visit the club and (OK the dogs damn!) Surely this W.I.A. funds will now run to that? Anyhow, if such a thing could be worked out on those lines.

And about the T.A.O. on ANYTHING (not country) to contribute articles on gear, antennae, station layouts and what not. If the Hams themselves W.I.A. NOT send in articles (I agree Mr. Editor that they are too lazy to send in articles and I'm no better than most), what's wrong with having a paid Ham visit the club and (OK the dogs damn!) Surely this W.I.A. funds will now run to that? Anyhow, if such a thing could be worked out on those lines.

As I am a migrating apiarist (bee-keeper) by trade, I have had time to really settle down as yet, but I've managed to get my QTH sorted by this coming winter, and will send in my QTH too. I have on my rig, receiver, antenna, etc., but as I'm not a ham, I've managed to get my QTH sorted by this coming winter, and will send in my QTH too. I have on my rig, receiver, antenna, etc., but as I'm not a ham, I've managed to get my QTH sorted by this coming winter, and will send in my QTH too. I have on my rig, receiver, antenna, etc., but as I'm not a ham, I've managed to get my QTH sorted by this coming winter, and will send in my QTH too.

There's only one thing which work with the "Dremelin" articles, and that is to have a big enough. If he really wanted to be he could fill a page quite easy each month but maybe he hasn't the time to spare. Anyhow he is doing a very good job. If he put out crack slip I hope he will there me and let me know too!

Now this letter of mine is I know, all mope and not much more than a letter. But I think I'm starting someone thinking. I'll be happy to have a great believer in the W.I.A. and have been an active member since 1939. I'm sure you'll be able to print I guess my ears will burn, but my conscience is broad and I can TAKE IT! Having said my piece, I will down your name.

Yours sincerely,

WALLIE BURFORD, VK3PB.

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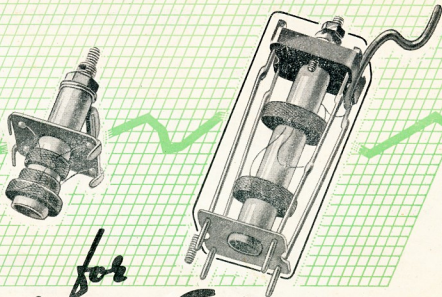
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